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Established 1835
Railway & Commercial Gazette

Vol. CCXLIII No. 6215 LONDON, OCTOBER 1, 1954 PRICE 8d.

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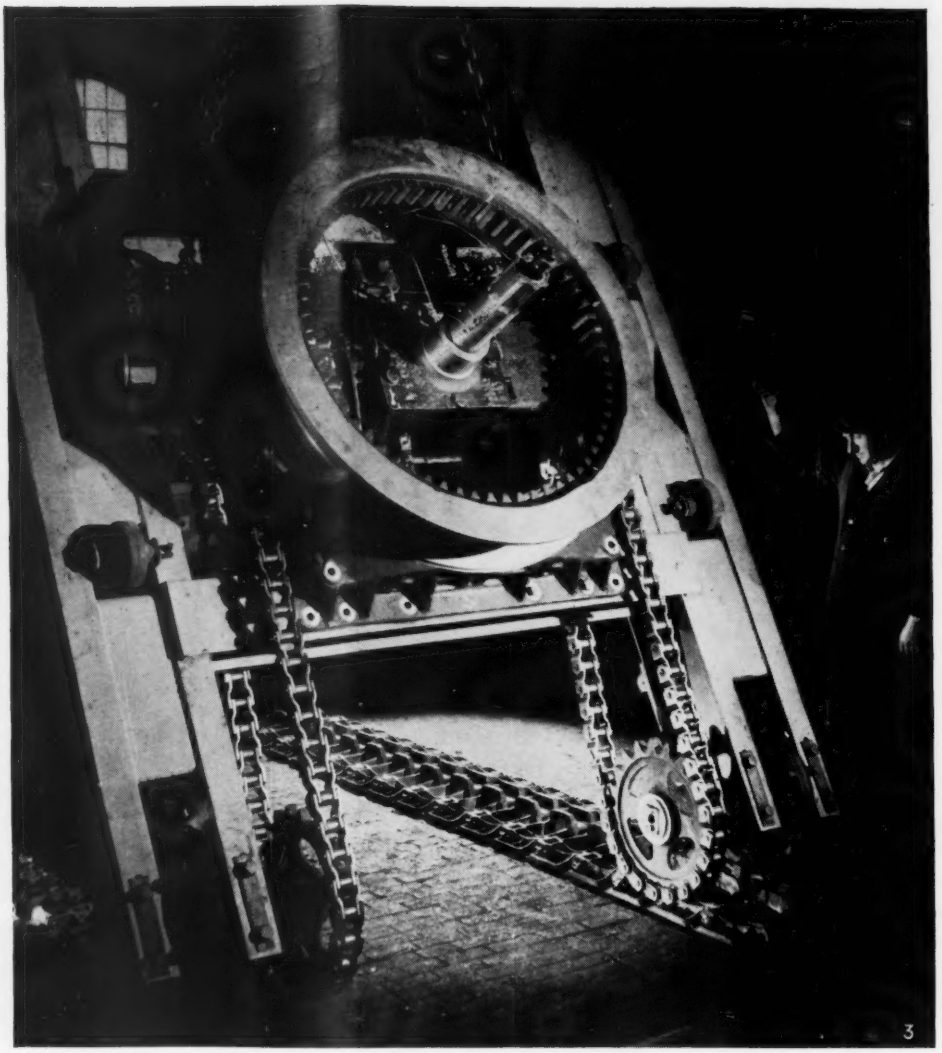

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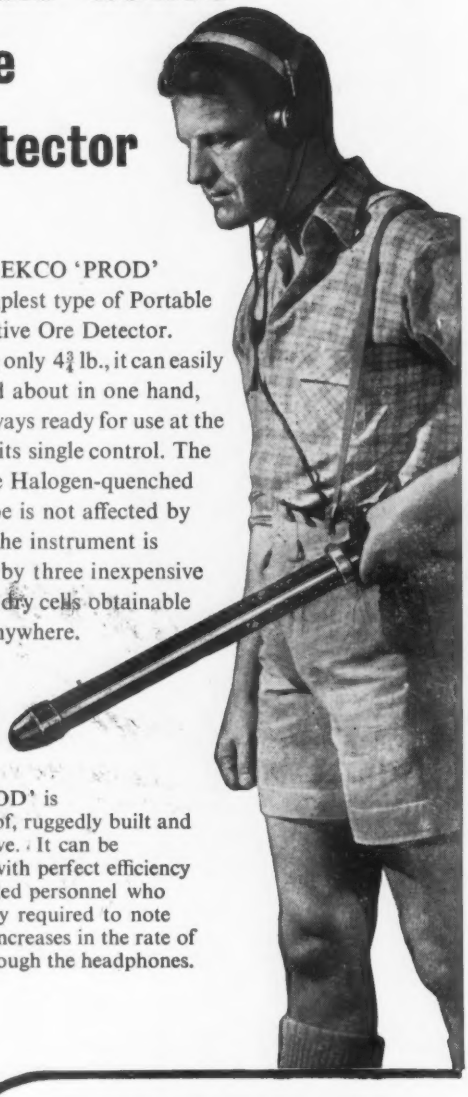

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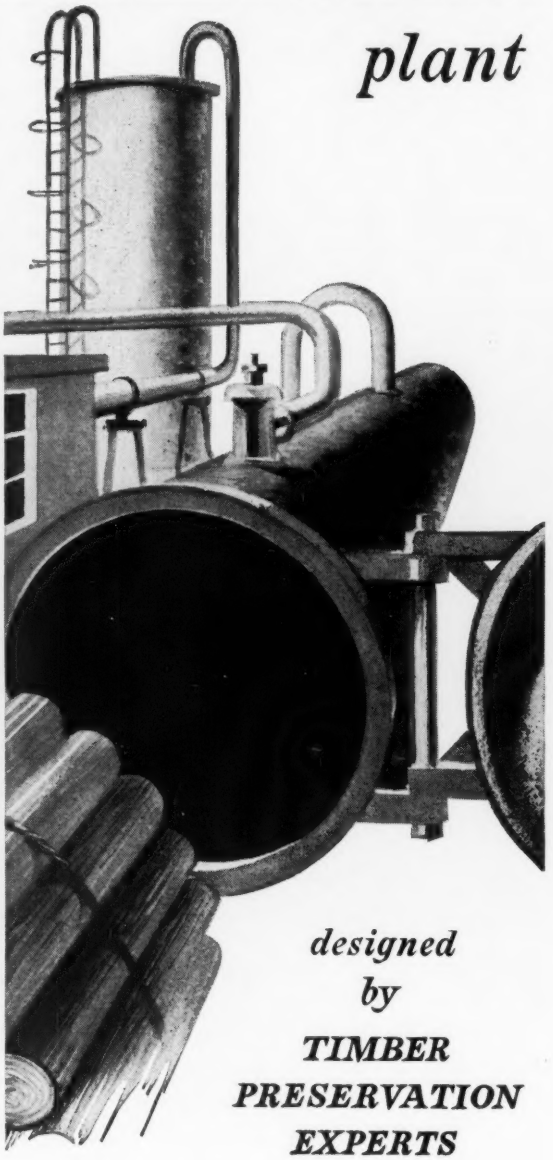

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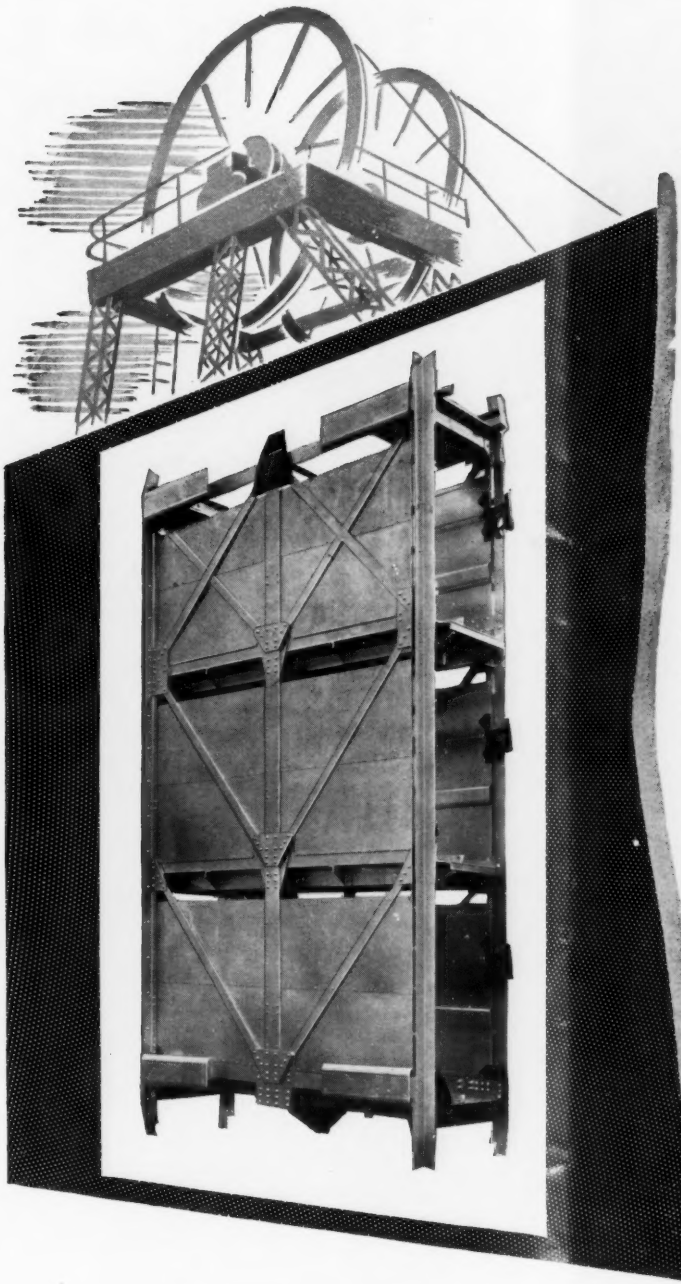

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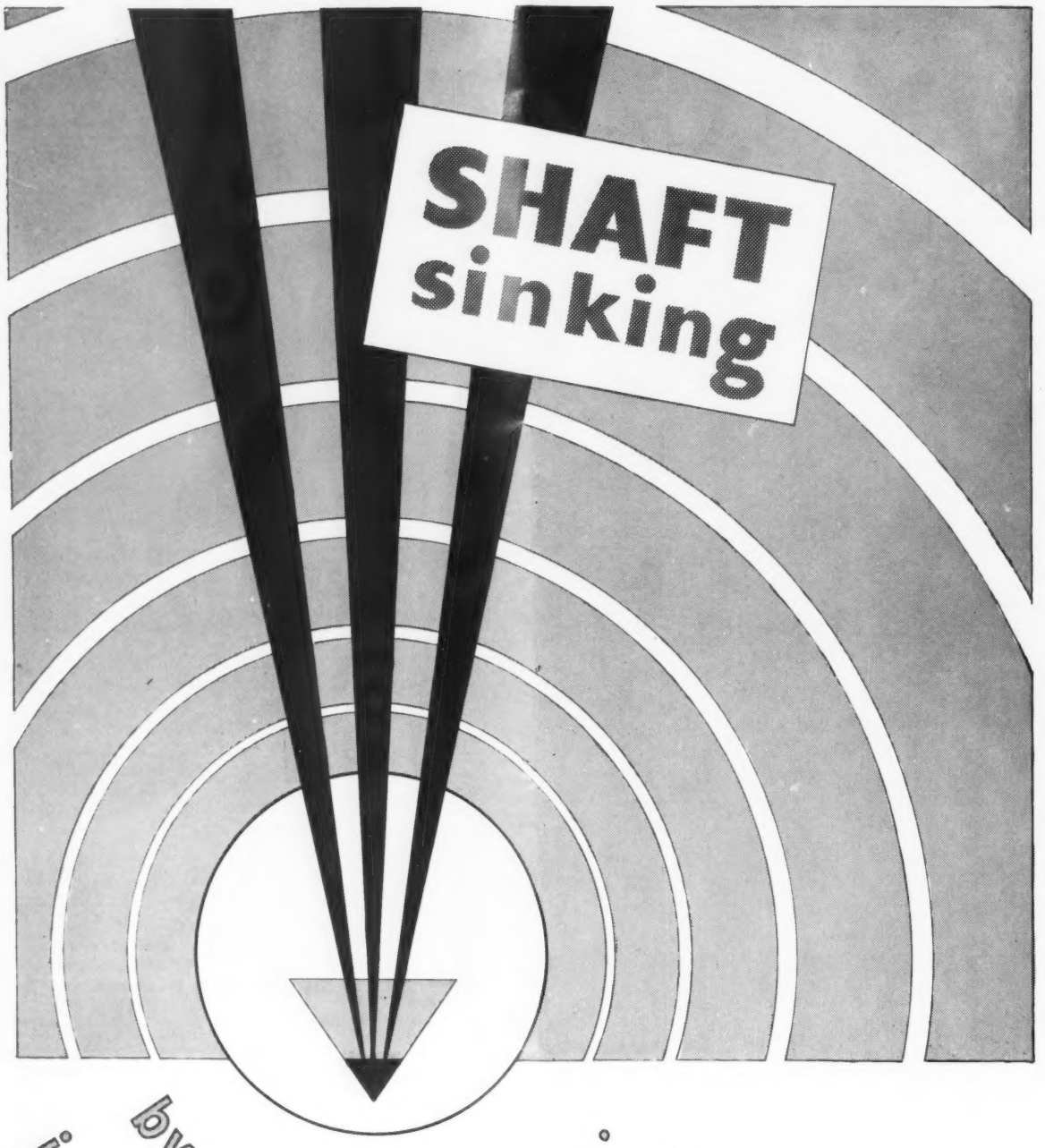

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NOTES AND COMMENTS

Some Straight Thinking at San Francisco

The annual meeting of the American Mining Congress usually always provides an important occasion for the discussion of U.S. minerals policy. The meeting at San Francisco last week was no exception. Although as we write we have only received brief reports of some of the principal speeches, the indication from these is of a marked change of outlook, at any rate within some sections of the industry, and speeches were generally in a much more sober and realistic vein than the tone of the Washington lobby might have led one to expect.

Particularly significant was the keynote speech of the Conference presented by Mr. Felix Wormser, until comparatively recently Vice-President of the St. Joseph Lead Company, and now Assistant Secretary of the Interior.

There is, according to Mr. Wormser, a widespread conviction in the States, that the exploration and discovery of new mineral resources lag behind the country's increasing use of minerals and, despite the generally steady growth of the American mining industry, the impact of two world wars has hastened the depletion of readily available domestic ore reserves in many mineral categories. While Mr. Wormser believes that the increasing gap between domestic production and consumption may be filled by imported materials, he adds the warning that foreign mining is itself subject to increasing costs through the exhaustion of the richer ore bodies.

Before joining the Eisenhower Administration Mr. Wormser was, it will be recalled, closely identified with the proposals for a system of sliding scale tariffs on lead and zinc of a singularly punitive kind, a fact which adds particular significance to his remarks at San Francisco which, in the abbreviated form in which they have reached us read strangely like the Paley Report with its insistence upon the States trend towards becoming a "have not" country for the majority of its metal requirements and the consequent opposition in that Report to any import restrictions.

Equally notable was Mr. Strauss's speech on the outlook for copper, lead, and zinc, which we report at some length on page 369. Briefly, his address constitutes a warning that the future of the American base metal industry can only be safeguarded by the efforts of the industry itself, and that the benefits of Government assistance in whatever form must, in the long run, prove illusory. It emerges from his speech that Mr. Strauss is concerned, as much if not more, with the threat to American base metals from steel on the one hand and the newer light metals on the other as with competition, "unfair" or otherwise, from foreign base metal producers.

Tariffs, Mr. Strauss points out, afford no protection to base metal miners against competition from other metals, and in so far as both tariffs and stockpiling have the effect of feather-bedding the industry, they serve only to price the older metals out of the market. He did, however, see one long-term benefit to the industry from stockpiling, namely, that the existence of large stockpiles assured availability in an emergency and thus served to offset the handicap of productive inelasticity.

In the long run what the industry needs is not more government assistance but more consumer demand, or, as Mr. Strauss says, its full share of a naturally expanding market. This can only be achieved in his view on a basis of competitive and stable prices and of confidence and goodwill of a kind which the industry's Washington lobby has been doing little to foster. As he sees it, confidence will only be built up through proven merit in the industry's products, through energetic search for new deposits to ensure availability of supplies, through better mining methods to keep down the price, and through research into new uses.

Uranium May Become South Africa's Primary Industry

By comparison with the Union's gold industry uranium production was still only a sideline declared Dr. A. J. van Rhijn, Minister of Mines for South Africa recently. Nevertheless, it was confidently expected that uranium production would become the country's primary industry. While the Minister made no attempt to give any details as to how this would come about, an indication of the potential wealth of the country's uranium resources is, perhaps, implicit in his statement that in the next five years the Union's income from mining operations of all kinds was expected to reach £1,000,000,000, which compares with an income of £200,000,000 last year.

To what extent South Africa is proposing to utilize her uranium resources for atomic energy purposes, was partly answered by the Minister, who said that South Africa may be one of the first countries in the world to harness atomic

energy on a substantial scale for industrial purposes, to achieve which the Government had decided to send a three-man scientific mission to the U.K. in the near future to study latest developments and practical application of atomic power for industrial purposes.

The encouraging picture presented by Dr. van Rhijn is much in line with the statement recently made by Dr. S. M. Naude, President of the Council for Scientific and Industrial Research, who said that the Union would be smashing the atom within two years, and that a cyclotron was being built for this purpose. Dr. Naude's view of the future possibilities was perhaps summed up in his prediction that with the present drain on oil and coal reserves throughout the world, the day might well come when South Africa would be exporting coal and using uranium and thorium to produce electricity. Indeed, in comparing costs, Dr. Naude said that a power station utilizing nuclear fuel would produce electricity in Britain at an estimated cost from ½d. to 1d. a kW.-hr. While well above the Klip station's costs for power supply to the Rand, it compared well with present costs of ¾d. at Cape Town, about 1½d. at Port Elizabeth, and 2½d. at Walvis Bay in South West Africa. The indications are that areas remote from the coalfields provide competitive conditions for atomic-fuel power stations in the Union.

Prosperous U.K. Steel Industry

The boom in the U.K. iron and steel industry continues to gather momentum.

U.S. steel is running in low gear ; German production is moving up ; but British steel is already on the crest of the wave and heading for new output records. Completion of new equipment and expansion of capacity could not have been more happily timed. An overwhelming demand finds the industry in good shape to meet it. And as the last quarter of the year begins, steel users who have not yet estimated the requirements find it increasingly difficult to do so.

The shrinkage in exports in August has no special significance. Shipments were delayed by the holidays. But over the first eight months of this year iron and steel exports have risen ten per cent and they are still increasing although for various products prices to foreign buyers exceed the fixed home maxima.

As a first step to increased production, ample supplies of raw material have been accumulated. There has been an increase of over 600,000 tons in the imports of foreign ore, and in August the arrivals of foreign scrap more than doubled the July figures. Almost immediately pig iron production will also be increased as a Derbyshire blast furnace, laid idle for re-lining, is now ready for work once more. This will ensure ample supplies of high phosphorous iron for the foundries, but all other grades are scarce. Steel works need every ton of basic iron which can be produced, and engineering foundries are so short of low and medium phosphorous iron that they are using haematite and refined grades as substitutes.

The return of the re-rolling establishments to full-scale activity has guaranteed the demand for steel semies to such an extent that it may be necessary to purchase extra supplies from the Continent. Billets have become scarce and re-rollers have found it necessary to supplement deliveries by the purchase of defectives and re-rolling scrap. The swollen demand for short bars and slabs is a direct consequence of the boom in the sheet and strip trade which has assumed impressive proportions whilst the demand for medium sized joists and channels has now so far outpaced the output of the mills that supplies from Western Europe have been bought despite the heavy import duty.

The Belgian Congo

(From Our Own Correspondent)

Brussels, September 27.

During the second world war the United States and the United Kingdom made a contract with Belgium for exclusive rights of purchase of the total uranium output from the Shinkolobwe mine, operated by Union Minière in Katanga Province of the Belgian Congo. The purchase price was fixed at a relatively low level, the sacrifice of revenue being regarded by the Belgians in the nature of a contribution to the allied war effort. At the end of the war, Belgium claimed and obtained an improved—though still moderate—price for the sale of its uranium.

THE FORCE OF THE McMAHON BILL

Despite this co-operation with the Western Powers, Belgium is currently unable to obtain the necessary technical information that would allow the development of atomic power for industrial purposes, the stumbling block being the McMahon Bill approved in 1946 which forbade the communication to foreign powers of any information concerning atomic energy and its applications in industry. The withholding of this essential information is giving rise to considerable discontent in Belgium and the Congo. The situation is regarded as particularly unsatisfactory owing to the fact that the Belgian Congo is the largest uranium providing area in the world.

Addressing an extraordinary meeting of shareholders of Union Minière du Haut Kantanga in Brussels on September 23, Mr. Blaise, president of the U.M.H.K. acknowledged that the Belgian government was deprived of the co-operation upon which the nation was relying for the formation of staffs of industrial technicians, which in turn prevented national industrial development.

Yet despite these grievances, there are hopes of a more optimistic future, for Mr. Blaise pointed out that the recent modification of the McMahon Bill indicates that Belgium will benefit from preferential treatment in the near future. Accordingly, Union Minière, following an agreement with other Belgian industries, has now resumed contact with certain American groups interested in the construction of atomic reactors.

SECONDARY IMPORTANCE OF EXPORT REVENUE

Mr. Blaise's remarks were echoed some days later in an article by the Colonial Minister which appeared in *Agence Economique et Financière*, the leading economic daily of the country. In this article the Minister stated, "It is important that as a counterpart of the exportation of uranium to the United States, Belgium and the Belgian Congo should in the years to come be enabled to benefit from the entire progress achieved in nuclear techniques. It is likewise important that uranium, which at the moment is entirely an exported product, should be used on the spot to supply the demand for power existing in the Colony." The Minister added that in his opinion the benefits of utilizing uranium in the Congo itself would become more important than any possible advantages accruing from exportation. He concluded his remarks by saying that uranium could offer new industrial possibilities to Belgium and the Belgian Congo and this would allow for a diversified economic expansion.

It would be unfortunate if Belgian demands were not granted owing to the possibility of the deterioration of international relationships which might follow.

The Rhodesias

(From Our Own Correspondent)

Salisbury, September 17.

The Board of Inquiry into African advancement in the Northern Rhodesia copper-mining industry concluded its sitting on September 13. It had listened for eight days to evidence given by all the interested parties and, despite a four-day boycott of the board by the African Mineworkers' Union, the inquiry ended in a spirit of cordiality. The Board's report and its recommendations are now awaited.

Some of the main points mentioned are of specific interest.

A spokesman for the mining companies told the board that the implementation of the "equal pay for equal work" formula, advocated by the European miners' union, would "constitute a first-class social and economic disaster to the Central African Federation." The companies were convinced that the maintenance of European leadership in the industry was essential.

On its part, the European Mineworkers' Union told the board that it had no wish to impede the "legitimate progress" of the African, but "in doing justice to the African one must beware of doing an injustice to the European." The union suggested that a board be established comprising representatives of the mining companies, the Government, and the European and African unions, which would examine particular jobs on the mines and establish a time limit by which an African must train for them. At the end of three years each applicant would be either passed or given more training, or put to other work of which he was more capable. The union maintained that if the mining companies' advancement proposals were accepted, 162 Europeans would —at the end of the suggested five-year period—be displaced and that the savings on their wages by the companies would amount to just under £250,000 a year.

THE CASE FOR AFRICAN ADVANCEMENT

In a memorandum submitted to the board, the African Mineworkers' Union stated that, with the exception of purely technical jobs, which required training at present denied to Africans, union members were capable of carrying out all jobs on the mines—both on the surface and underground. The memorandum pointed out that although there were almost eight times as many Africans employed on the mines as Europeans, the Africans, between them, did not receive even half the wages of the Europeans. The memorandum stated further that the African was capable of serving an apprenticeship in the same way as the European, but this could not be done because of racial segregation supported by the laws of Northern Rhodesia. "We feel very strongly," said the memorandum, "that a profound review of the African labour position is necessary. Special attention should be paid to the so-called partnership in this country, because the time is now opportune for industrial partnership to be an example to political partnership."

The president of the African Salaried Staffs' Association —whose appearance before the board led to the withdrawal for four days of the African Mineworkers Union—said that instead of "equal pay for equal work," Africans carrying out jobs classed as "European jobs" should receive three-quarters of the European's wage. His association, he said, viewed the "equal pay" principle as a mere slogan meant, indirectly, to hinder Africans from economic advancement. He said, however, that the European standard of skill and education was much higher than that of the African, and real competition would not arise in the near future. In addition, as the Europeans' cost of living was much higher, it would be unfair to put the two races on the same pay level.

Canada

(From Our Own Correspondent)

Toronto, September 20.

Geco Mines, discovered late in 1953 in virgin territory of north-western Ontario, and extensively diamond drilled during 1954, has some 14,000,000 tons of ore so far indicated. Gross values in copper, zinc, and silver have been officially estimated at some $290,000,000 in the sections so far drilled. A new highway and a new railway are being built to the mine, and a plant is being designed to treat 3,300 tons of ore daily.

Canada's gold production for the first six months of 1954 was 2,092,000 oz. compared with 2,204,000 oz. in the first half of 1953. The decline was largely due to labour union troubles at the turn of the year, and there are indications of a moderate increase in output during the last half of 1954. A more optimistic atmosphere prevails at the gold mines at this time due to an abundance of labour and a general increase in working efficiency. Also, the operators of gold mines in Canada continue to believe that sooner or later a higher price will materialize.

Nickel output rose to 77,443 tons during the first six months of 1954. Current production of nickel is running at a rate which indicates probable production of close to 80,000 tons during the last half of the year. Canadian output of lead rose to 110,000 tons during the first half of 1954 compared with 100,600 tons in the corresponding period of the preceding year, while copper output for the first half of 1954 rose to 144,700 tons compared with 135,300 tons in the first half of 1954.

Stockpiling of copper, zinc and lead, in the United States, is exercising a stabilizing influence on Canadian production.

FURTHER URANIUM DISCOVERIES

Algom Uranium has diamond drilled 2,000 ft. vertical to intersect the flatly dipping conglomerate and has intersected commercial values in uraium—at a depth of about 6,000 ft. on the incline. The company now estimates some 4,000,000 tons of ore indicated.

An impressive discovery of uranium has been made by prospectors of the Barymin Co. Ltd., on claims situated in British Columbia at a point about 15 miles south of the Yukon border. The discovery is at an elevation of 6,500 ft. in the Rockies. Despite the high altitude, the rocks are largely covered with overburden. Preliminary sampling reveals the presence of 0.12 to 0.32 uranium oxide. Radioactivity has been noted at intervals over an area 10 miles in length, but much surface trenching as well as diamond drilling will be required to determine uniformity.

Canada's gross national product promises to closely approach $24,000,000,000 during 1954, running only slightly lower than the peak year of 1953. The current trend of Canada's mineral trade as measured by value exported during the first six months of 1953 and 1954 is illustrated by the following table:

	1953	*1954*
	$	$
Nickel	81,640,600	91,242,530
Copper	62,990,000	58,627,000
Asbestos	41,698,000	37,628,000
Zinc	35,580,000	24,930,000
Lead	21,171,000	18,682,000
Platinum	14,230,000	14,563,000
Silver	7,813,000	8,625,000

Gold exports are not reported for the reason that the Canadian government itself is currently absorbing domestic output. Gold reserves at Ottawa now stand well over $1,000,000,000.

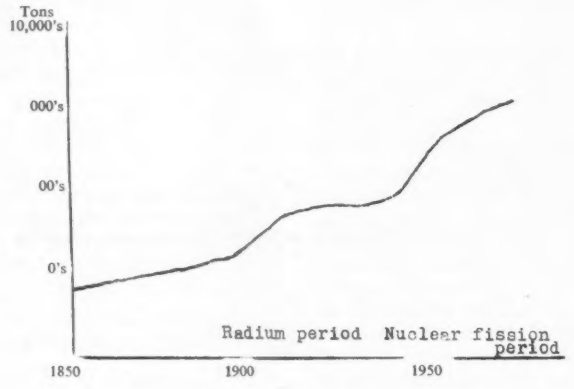
Reflections on Uranium Ore Production

By ROBERT A. MACKAY, D.Sc., M.I.M.M.

The following article, a condensed version of which appeared in *The Mining Journal Annual Review* 1954, considers some of the little information that is publicly available on the economics of uranium mining and makes a few speculations as to its future from the point of view of the producer.

Engineers and geologists often have a difficult task when dealing with metals and minerals, in endeavouring to assess what their future will be, and so to advise on whether a venture brought before them is worth considering or not. Dealing with the situation, however, they do have the benefit of past data on world production and world prices; and they can usually be sure on long term that the world's consumption is rising, and that if production does temporarily rise so fast as to depress the price by supply exceeding demand, this will probably be but a temporary feature; even the development of substitutes has not for long depressed the price of a metal, for new uses were found when that price had become reduced.

In dealing with uranium the engineer has no background of this sort, for though it is true he has some figures extending back well into the last century they only deal with uses that have now become quite insignificant when set beside the main uses for purposes of war or atomic power, nor can he have any conception whatever of the future trends in these two main uses. It may be thought that an advantage exists in the fact that officially fixed prices prevail in the main countries of the world. When this is more closely examined, however, it does not appear to be very helpful; at least two of the main producers of the world, the Congo and the Union of South Africa, have special negotiated prices undisclosed to the world. Even in Canada, though the price published there is about $14 per lb., the average potential producer sometimes still thinks that he may negotiate a price in excess of this; while in the United States of America prices vary very considerably with the grade encountered, and again certain bonuses can under certain circumstances be obtained. Thus a potential producer is quite unable to determine what price he is likely to receive until he has assessed his deposit, and then may be required to enter into lengthy secret negotiations.



A century of uranium production

PRODUCTION, USES AND PRICES

An attempt is made on this page to indicate the magnitude of production of uranium over the past hundred years. This is only intended as a generalization, and subsequent to the discovery of nuclear fission is quite obviously somewhat of a guess; a guess, however, based on the public statements of responsible authorities. It should be emphasized that it is not an estimate of current production but merely intended to indicate its order and magnitude.

Some prices quoted in the three main English-speaking countries are given below :

Great Britain : 25s. to 35s. per lb. U_3O_8 contained.
U.S.A. : $3.50 plus bonus according to grade and transport charges.
Canada : Plus or minus $13 according to grade.
Australia : From approximately £2 per lb. for ore with 0.25 per cent U_3O_8 contained to approximately £2 10s. per lb. for ore with 10 per cent U_3O_8 contained.

It will be noted that these prices differ very considerably and, as has been stated above, bear little relation to many of the prices which are probably actually paid. From statements that have been made it may be inferred for example that the cost of the ore obtained from the South Africans is substantially in excess of the figures for the price offered in England, and also to that pertaining in the United States. Moreover, the quoted English price can be considered to be somewhat unrealistic, inasmuch that no uranium is produced in this country, and as far as the writer is aware, none is being directly searched for for its own sake (with one known and one possible exception) by any companies operating from this country.

One use at present overrides all others overwhelmingly — atomic weapons. As a by-product to this, and the research for it, certain important and valuable isotopes are being made, but these could not in any way affect the economic trends in the demand for uranium. The second use is about to arrive—it has been stated in Parliament that a nuclear reactor for the production of industrial power, at a price competitive with coal, will be with us in this country in less than three years and that at least one other is already planned and will soon be started. The size of these power plants is also unknown but a guess can be hazarded that they will be large, and that substantial amounts of uranium can be consumed in such plants should they be followed, as is likely over the coming decade by other such plants.

RAPID GENERAL DEVELOPMENT

A leader in the electrical industry recently remarked that " developments are taking place at a speed which has been unexpected and with gathering momentum." America has also embarked upon projects of this kind and should the first industrial plants prove efficient, there is little doubt that expansion in that country will, as we have seen in so many other things, be far more rapid than in this, even though their need is less in terms of power sources. Of course, nobody outside the security groups can possibly even prognosticate in actual figures what such expansion could mean. In addition to this, it depends too on how satisfactorily the breeder piles work, for if they are not efficient, much larger quantities of uranium will be needed for industrial uses. It would seem relevant to predict that, should our own industrial experimental power piles prove economic, policy in this country would dictate that more be built as rapidly as our national resources permitted, in order to take care of power expansion without going after the difficult

coal resources that would be needed to achieve the same end.

NATURE OF DEPOSIT

Uranium deposits may be divided into two main classes: Primary, where the deposit is worked for the uranium essentially; and by-product where the uranium is obtained by the working of some other material such as gold, niobium, phosphate or oil shale.

Hedged round with secrecy as the subject is, it is impossible to state what the grades of various deposits of the world are, and so to give a precise guide as to what grades are economic and what are not, and one wonders whether we do not defeat our own ends more than we embarrass the enemy by the super-secrecy which prevails in this subject. For if engineers are unable to discuss freely with one another the matter of resources, then progress must be slow. It is true that within government circles discussion can be free, but this does not satisfactorily help industrialists to search for, develop or work deposits. In South Africa this secrecy is carried to the greatest extremes, and it is only possible to say that from published figures some thousands of tons per annum must be contemplated and the grade must lie between 06 per cent and 006 per cent (say $1.5 to $15 at Canadian prices), but this should really be considered under the by-product class of deposit.

The uranium extraction plant at Daggafontein Mines Ltd.

In Canada, however, there has been a greater freedom of discussion and one can say that engineers there consider that a small deposit of one per cent is definitely worthwhile, and so it should be, for such deposits will be rare; whereas a large deposit of 0.1 per cent is also considered in the range of profit making.

ABSENCE OF ALLUVIAL DEPOSITS

All primary uranium deposits are of various hydrothermal types, and it is worthwhile in passing to say that there are no alluvial deposits of uranium in the world, and it is virtually safe to say, none may be expected. Commercially this is important, for it will be remembered that it was the great tin-alluvial deposits that killed our Cornish lode mining. Regarding the grade that can be worked, Canadian figures that have recently been published suggest that companies are easily able to raise capital for ores claimed to be of the order of 0.1 per cent if they contain tonnages of the order of a million.

Davidson, in 1949, suggested that 0.4 per cent was an attractive proposition well worth investigating if the tonnages were of the order of 10 tons of contained uranium oxide. This figure is probably still a realistic one for the small man, though it is possible that rather less than this could be considered. Certainly figures of this sort can at the present time be regarded as high grade, whereas high grade used to be considered in the terms of one per cent urania in the days when radium was the element sought. It is also even probable that for very large tonnages anything above .05 per cent should be considered at the prospecting stage, though it is quite certain that a good deal of investigation would be required before exploiting such a grade could really be considered. Costs of mining and treatment would have to be low in such a case. It may be noted that on Canadian price, .05 is equivalent in gross value content to 7 dwt. ore in gold, or on British prices a 3 dwt. ore, and that the cost of mining would in no way be categorically different from that of gold, while the cost of milling to produce a saleable concentrate should be no greater in the case of an easily-dressed uranium ore. The milling cost could in certain instances, however, be considerably greater and could put quite a moderate grade uranium property beyond the possibility of working.

All that is suggested here is that anything above .05 on big tonnages is worth investigating. If this figure is reasonable, then it also follows that .1 becomes worth investigating on moderate tonnages, say of the order of 100,000 tons. It should also be remembered that the product sold is often equivalent to the rougher concentrate in other metal mining operations.

Turning to by-product sources, reference is made elsewhere in this article to the Witwatersrand which is the outstanding source in this class. In discussing the Rand, tribute should be paid to the foresight of C. R. Davidson and George Bain for their early recognition of the possibilities in the face of much opposition. It was of course known before this that radioactive content existed, but its grade and extractability were doubted.

The futility of applying secrecy as to what the actual figure is can readily be appreciated in the case of South Africa when the total tonnage from the mines producing uranium is published, their past dumps can be easily estimated and, by a little very simple arithmetic, the potential of the countrry could readily be gauged by an intelligence officer. Surely we are embarrassing our own industry to a greater extent than we are embarrassing any political enemy, to whom accurate figures are far less important than a general estimate of potential.

Another source of the future is pyrochlore. Not all pyrochlore contains useful amounts of uranium but some of it does, notably that of a large deposit in Nigeria and some in Canada does so. It is too soon to reckon possibilities but by-product grades of .02 are not to be despised. The potential is, however, only of the order of hundreds of tons per annum from a world production viewpoint.

The writer is not aware whether serious production is yet coming from by-product extraction from phosphates which commonly run from .01 to .005 and sometimes above this range; the process is in any case a secret one which would most likely not be released except to the most reliable of operators in a country where the secret was felt to be absolutely secure. Again, a little simple arithmetic involving the production of phosphate from those leading countries who are considered reliable by the powers controlling uranium purchase, would easily estimate this potential, which seems to be of the order of a thousand tons or so per annum.

THE WORLD SOURCES OF URANIUM

It is, of course, impossible to discuss this subject quantitatively; a few years ago, Belgium was definitely the leading producer from large, rich hydrothermal deposits in the Congo—it may still be in the lead. At that time Great Bear Lake was the second producer. Since then the Rand has started to produce and has ambitious objectives. It may rival, or perhaps even surpass Canadian production, certainly

Eldorado Mining and Refining Ltd. situated in the Beaverlodge area of Saskatchewan

Canadian production of a few years ago; but since then also the Canadians have had very active prospecting and development campaigns in other parts of their country and discovered much new ore, notably that of Athabasca, particularly the Beaverlodge Lake area. There have, of course, been many hundreds of bucket-shop and wild cat operations in Canada, but the Athabasca area seems to be a genuine and important discovery of the moderate grade type; 0.1 per cent is considered commercially interesting there, though there will be patches above this.

Australia has also entered the field but from a production point of view is presumably still unimportant; though there has been much discussion of late of Rum Jungle as a possible important producer of the future.

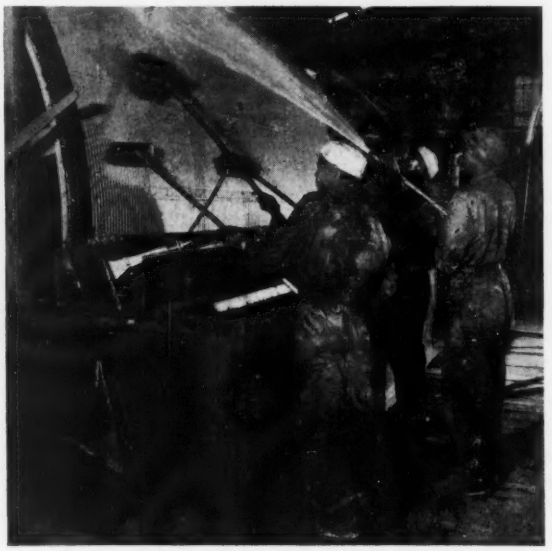
The United States have intensified their exploration and production from the carnotite fields of Colorado, but (again using the word probably) this is not thought to be one of the world's major sources.

It is suggested that though seemingly Canada is geologically richly endowed, the freedom with which industry has been allowed to participate in uranium exploration and production, and the freedom with which the matter may be talked about relatively to that in other countries (though subject to proper security controls of the necessary type) has done much to contribute to the rapid advance of Canada in uranium production and potential production.

International Minerals and Chemical Corporation's Noralyn Plant produces uranium compounds from phosphate rock

On the other hand, in the Empire there have been instances of government demanding to take a considerable part in the operations, and it is yet to be seen that this has stimulated or speeded up production. There are specific cases of properties which could have interested industrial houses where the fact of government participation discouraged the possibility of participation by companies concerned. On top of this, in some instances, the work done by government organizations has not been made as freely available as it might have been. True, responsible houses enquiring of the government sources, will be given certain information, but this is not the way in which exploration is normally stimulated in a country of free enterprise.

Production has been mounting heavily and is still mounting. It is difficult to assess to what degree progress is due to the effort being expended and prices offered on the one hand, and to the natural endowments of the countries on the other. Certainly Canada leads in both, the United States is getting everything it can from a country which does not seem, as far as is known, to be very heavily endowed;



Cleaning the cloth of a uranium filter at the West Rand Consolidated mine

Australia is devoting much effort, is relatively reasonable on the security basis, and is also showing signs of moving ahead. South Africa is in a different class, the uranium being a by-product of an industry of great dimensions. The rest of the Empire moves slowly, perhaps due, to some extent at any rate, to the fact that the industrialists do not feel that they are much encouraged, and that we have only one geologist available in this speciality in the rest the Empire for at least ten in the New World.

If the prognostications in the Paley Report are true the mounting demand for raw materials of all kinds, and the mounting demand for power, will mean in some of the older countries at least that a proportion of this power will have to be supplied by nuclear energy. It may be that the world may become more peaceful and that the amount of uranium freed by a decrease in the manufacture of armaments would become available for this power, but it seems quite as likely that the world demands for uranium will increase on all counts. Unless therefore breeders reduce the necessity for raw uranium to a very drastic extent, it may be expected that no further than a decade from now, industrial needs will begin to mount seriously. So far, the world has proved insatiable in its demands for increased power requirements.

The Future of Copper, Lead and Zinc

The report which follows constitutes extended extracts from a paper presented by Mr. Simon D. Strauss, Vice-President of the American Smelting and Refining Company, at the annual meeting of the American Mining Congress held in San Francisco last week. The significance of Mr. Strauss's observations and those of some of the other leading people at the meeting are discussed under "Notes and Comments."

Since 1947 industrial production of the country has increased between 25 and 30 per cent, as measured by the Federal Reserve Board Index. In the same period consumption of copper and lead in the United States has declined slightly and consumption of zinc has increased by a very modest amount.

In the past we have tended to think of consumption of these basic metals as varying directly with industrial activity. The sharp divergence in the trend between over-all industrial activity and the use of the non-ferrous metals in the last seven years, therefore, is disturbing.

Other industries which in the past were considered of equal basic importance have not participated in recent economic expansion. Coal is an outstanding example. Butter is another. Consumption of potatoes, on a *per capita* basis, has fallen every year for the last 50.

Is there an ominous parallel between coal, butter and potatoes on the one hand, and copper, lead and zinc on the other? Is the relationship of aluminium to the older non-ferrous metals the same as that of oil to coal or of margarine to butter? Is stockpiling of metals likely to result in shrinking or static sales to consumers just as stockpiling of butter by the Government has been paralleled by a drop in sales to consumers?

Here are some factors that merit consideration on both sides of the equation :

MATERIAL COST A DECLINING ELEMENT

1. One cannot expect that consumption of copper, lead, and zinc, would in any case rise as much as over-all industrial activity. Much of the new economic growth of the country is in such fields as electronics and aviation, which are enormous users of man-hours but small users of raw materials. Consequently, one should not consider that the metals are falling by the wayside if their use does not increase quite so rapidly as over-all economic activity. But obviously, consumption should show some increase if the industry is to maintain a healthy economic position.

ALUMINIUM PRODUCTION RELATIVELY ELASTIC

2. One factor that has hurt copper, lead, and zinc has been the relatively inelastic capacity of these industries. U.S. capacity to produce aluminium was doubled in three years (1951 to 1954) in response to the Korean crisis. A corresponding increase in copper, lead, and zinc would have been virtually impossible in the same period of time, no matter what economic incentives were offered to the producers. The reason for the greater speed in expanding aluminium is that bauxite reserves are high-grade, easily mined, fairly abundant, and account for only a small part of the over-all cost of producing aluminium. To expand aluminium output is a question of providing power and processing facilities. With copper, lead, and zinc, expansion is only possible when new ore deposits have been found. Relatively few commercial deposits are lying unexploited and available for quick development in the event of an emergency. The new ones require extensive and expensive preparation and equipment.

AVAILABILITY FACTOR IN MILITARY SPECIFICATIONS

3. The fact that additional supplies of copper, lead, and zinc cannot be made available as rapidly has led to a pronounced tendency on the part of planners of military equipment and supplies to design away from the base metals and into aluminium or steel. And once a military requirement has been established and additional aluminium or steel capacity has been built to meet it, then the expanded supply hangs over the market in peace-time. The intelligent and aggressive drive for markets made by the aluminium producers has been premised on the promise to consumers that ample aluminium will be available. Consumers are less certain of base metal supply. Copper has lost ground to aluminium in the fields of electrical conductors and hardware, zinc is faced with aluminium competition in die casting and galvanized sheets, and lead is now threatened with aluminium applications for cable coverings.

IMPORTANCE OF PRICE STABILITY

4. A further factor which has tended to encourage the substitution of aluminium for the base metals is the relative price stability of aluminium. The limited number of producers and the relatively low labour factor in its cost of production are the two principal reasons why the aluminium industry has been able to avoid frequent price changes. There are some who feel that the base metals should adopt a similar policy. Desirable as this may seem, the very nature of the industry makes it impracticable. The large number of producing entities, many of which are not directly sellers, prevents rapid curtailment of production when demand drops. Unit costs mount sharply on declining volumes, so the average mine continues to produce at full capacity until receding prices caused by surplus stocks forces some to close. In other words, demand for base metals varies considerably but supply tends to remain constant—the inevitable result is wide swings in price.

EFFECT OF PRICES ON CONSUMPTION

5. Prices do have an effect on the volume of consumption, but the effect is a delayed one. Each time the price of lead or zinc was reduced during 1952 and early 1953, one heard the sage remark that "They won't sell any more metal at the lower price than they would have at the old one." This is undoubtedly true over a short period of time—say six months or so. But over a period of time, price has a most important bearing on the volume of consumption. I am personally convinced, for example, that if copper stays at 30 c. a lb. for an indefinite period of time its use will be considerably lower than it would be if its average price in the future were to be 24 c. a lb. Whether demand at 30 c. will still be large enough to absorb the available supply is another question ; the point is simply that price does affect demand eventually—when consumers are convinced that it is going to stay high or stay low, as the case may be. To offer a simple illustration, I refer again to the wide-scale substitution of fuel oil for coal as a source of power and of heat. The relatively high price of coal caused this ; the temporary dip in coal prices that occurs in slack seasons is not enough to reverse the trend.

PROTECTION BY TARIFF ILLUSORY

6. To say that low prices are caused by the dumping here of metal produced abroad, therefore, is an over-simplification of a complex problem. Prices of lead and zinc are lower to-day than they were at the time of the Korean war in part because the demand for these two metals was adversely affected by their high prices at that time. A tariff wall might protect the domestic miner from foreign competitors; it would not protect him from aluminium or other substitute materials. And if, by virtue of a tariff wall to keep out imports, the United States price is maintained at a level that causes a reduction in over-all demand, then even the domestic mine production may eventually be in excess supply.

STOCKPILING ONLY SHORT TERM SOLUTION—

7. The President within the last 40 days has decided that for the present at least the problems of the lead and zinc industry can best be met by accelerated stockpile buying—at the rate of 200,000 tons of lead and 300,000 tons of zinc of domestic origin a year. These figures are roughly two-thirds of the current rate of mine production and about half the 1951-1952 rate of domestic mine production. Even with the large stocks of zinc overhanging the market when the programme began, its effect promises to be to move prices upward. In fact, the initial announcement of stockpile buying in March was primarily responsible for the market strength in the prices of these two metals during the spring. For the short term this may be a solution to the industry's economic problems. But unless the Government is to go on buying for stockpile forever, the industry must have more consumer demand to remain in a healthy economic status.

—ALTHOUGH INCREASED AVAILABILITY WILL ENCOURAGE USE

8. As the Government stockpiles base metals grow, the incentive to design away from base metals for military purposes should lessen. Large stockpiles should give the services a feeling of security as to supplies of these metals and they should therefore plan on using the material most suited to a particular purpose rather than simply the material most likely to be available. This, in turn, may mean that perhaps if there is another Korea-type emergency, the Government will be less prone to finance expansion of aluminium capacity simply because it can be done more easily and more quickly than expansion of copper or lead or zinc capacity. The base metals can have no quarrel with the growth of the aluminium industry, if it is based on normal economic and technical development. But to have a competitive material financed on an excessive scale by Government funds for wartime purposes can create serious peacetime problems.

THE OUTLOOK

To summarize, it would be nice to be able to say that the outlook for copper, lead and zinc is rosy. I do believe the over-all business outlook for the country as a whole is good. But the three base metals have not been sharing in the increase in general business activity to the extent they should. If this situation is to be corrected, if they are to enjoy their normal share of expanded trade, the producers of these metals must be prepared to offer their wares at an economic price in relation to competitive materials and the fabricators and manufacturers who convert the metals into finished products must have reasonable assurance of future supplies comparable with the assurance they now feel about, for instance, aluminium.

Rock Salt Mining in Pakistan

Traditional Asian methods of rock salt mining have proved inadequate to meet an increasing demand for output in the Pakistan Salt Range—a deposit of rock salt left exposed by a receding sea. Nor was this demand met—even in part—by the adoption of hand drilled shot holes blasted in the usual manner. In a further endeavour to increase output from the Salt Range air compressors driven by fuel oil engines together with pneumatic undercutters and rock drills were placed in operation, but as output increased so likewise did the population of the area, and it became necessary to acquire other machinery.

The outcome has been the adoption of an unconventional mining system marked by the complete absence of shafts and headgears. The method of reaching the salt deposits is for a drift to be driven into a hillside, and as excavation progresses a 2 ft. 6in. steel track is laid. On this track tubs are hauled in and out of the mine by locomotive, the unit proceeding between the underground loading point and the main railway siding.

SYSTEM OF MODERNIZATION

In the modernization of the Salt Range mines a general electrification scheme was put into operation and a diesel-electric power station installed. Contractors were Metropolitan Vickers Ltd. and Mirrlees, Bickerton and Day Ltd. This power station constituted the only feasible source of power in the face of a possible coal supply which was prohibitive as to cost and a precarious supply of fresh water.

The air compressors in use at that time were manufactured by Belliss and Morcom, who stated that as the two-stage compressors already were fitted with intercoolers, an additional output of a minimum of 25 per cent could be obtained if speed could be increased by approximately 30 per cent. The compressors were driven by 240 b.h.p. oil engines and were installed on the surface, but as the salt seams varied in thickness up to 200 ft., and as excavations left large open spaces, advantage was taken of the electrical drive to deviate from conventional practice, and thus the air compressors were installed underground together with the 300 b.h.p. driving motors and starting equipment. These driving motors are manufactured by The English Electric Company, and are 3 phase 3,000/3,300 V. units.

By this arrangement two economical results occurred. Not only was the original length of compressed air mains considerably shortened and the corresponding installation charges and pressure drop reduced, but in addition the initial cooling of intake air became unnecessary.

EXCAVATING UNITS

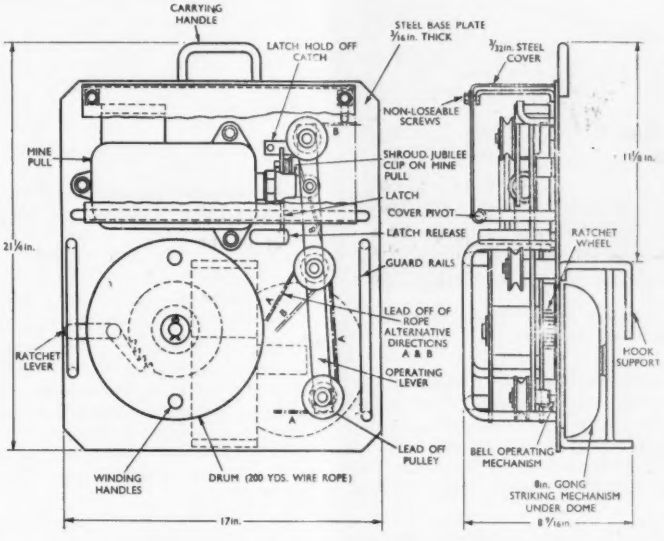
Because of the old and inefficient undercutting machines in use it was realized that excavation charges were abnormal. Twelve to fourteen of these machines were in operation in various parts of the mine for which a large compressor and driving unit for an eight hour shift was required.

To cut down this expenditure Mavor and Coulson devised an improved pick for use with their standard cutters in rock salt operations. This unit had a file 4 ft. 6in. in length embodying a 23 pick box, 11 line strap link chain operating at 322 f.p.m. These picks are of special nickel steel alloy tipped design with cutting points made somewhat wider than the coal-cutting variety. The new machine embodies a 30 h.p. electric motor and this combination has solved the problem of economical rock salt mining in Pakistan, as one of the new units can cut an equal square footage as 12 to 14 of the compressed air machines previously employed.

New Mechanical Control Unit for Coal Face Conveyors

In keeping with its tradiaion of service to the mining industry established by The General Electric Company Ltd., the company has now announced the development of a mechanically operated signalling and motor control unit for coal-face conveyors that does not rely on a battery which could develop a fault. This is fitted with a flameproof pull, latch-out device, mechanically operated bell, and a winch, all mounted on a steel frame. It can be operated from either side and has no aluminium in its construction.

By pulling the pull wire of the unit, the operating lever is rotated clockwise, thereby simultaneously operating both pull and bell mechanisms. Normally the latching device will come into play and lock out the control circuit. The bell, however, can continue to be worked each time the pull wire is operated, and depression of the latch release bar will restore the trip circuit to normal. If the latch is locked out, the micro-switch contacts in the pull are immediately reset when the rope is released.



Operational method of the mechanical signalling and motor control unit for coal face conveyors

The unit is built up on a $\frac{3}{16}$ in. thick steel base with a carrying handle and a hook at the rear for attachment, by means of a clamp, to the pit-prop or conveyor structure. A hinged cover made of 3/32 in. sheet metal and retained by non-loseable screws, encloses and protects the pull and latch mechanism against damage. To protect the winch and operating lever during handling, guard rails are fitted at each side.

DUST CONTROL

The flameproof pull for the unit is fitted with two micro-switches and uses a special gunmetal eye to attach it to the operating lever. One of the micro-switches is used for the conveyor motor trip circuit; the other provides a spare contact, normally open or normally closed as may be selected. A rubber shroud is provided to prevent coal dust getting on the pull spindle during operation. This is secured to the boss on the pull by means of a jubilee clip.

The latch is made from steel bars and operates through a slot in the rubber protecting shroud and consists of a pivoted and spring-loaded lever, which rides on the barrel of the eye and engages in the gap between the eye and the pull when the switch is operated.

The winch is fabricated from $\frac{3}{16}$ in. steel sheet. It has two stub winding handles, and is locked against the movement by a cast iron hatchet and pawl. The winch spindle is in the form of a $\frac{3}{4}$ in. dia. steel pin bolted through the base, while the winch ratchet is provided with 36 teeth, giving close adjustment of the rope tension. Approximately 200 yd. of $\frac{1}{8}$ in. fine steel wire rope can be accommodated on the drum.

The operating lever, pivoted at the centre, is loosely coupled to the eye of the pull, and at the opposite end engages with the bell operating mechanism. The lever also carries three small pulleys for leading off the wire rope in the chosen direction. An 8 in. dia. gong is carried on a bracket extension to the rear of the main baseplate.

OTHER MINING EQUIPMENT

General Electric equipment is in use in the world's mining fields, and of specific interest is the company's new system of dynamic braking and automatic speed control which is now being extended for use with Koepe winders.

There is also being developed in the Witton laboratories a creep speed compensator, while a new range of fractional horsepower A.C. motors have recently been announced. The creep speed compensator predetermines automatically the creep speed of mine winders and ensures that a full or empty cage arrives accurately at the decking level; the fractional horsepower A.C. motors are similar in appearance to the present G.E.C. designs, although they are lighter and more compact. The new motors comply with BS 2048 and are mechanically interchangeable with other makes complying with this specification. Of additional interest is the fact that they are also interchangeable with American motors made to N.E.M.A. (U.S.) standard.

The stator laminations of the new motors are accurately stacked and rivetted under high pressure to ensure maximum rigidity. The ends of the stator pack are finally spigotted true with the bore for mounting the bearing breackets, and one-piece pressing, screwed securely to the stator, ensures correct centre height and accuracy of alignment of the foot-mounted motors. Great care has been taken in designing the sleeve bearings which have steel back white metal line bushes finished to a high degree of accuracy, and in the final operation of their production they are diamond bored true with the spigot.

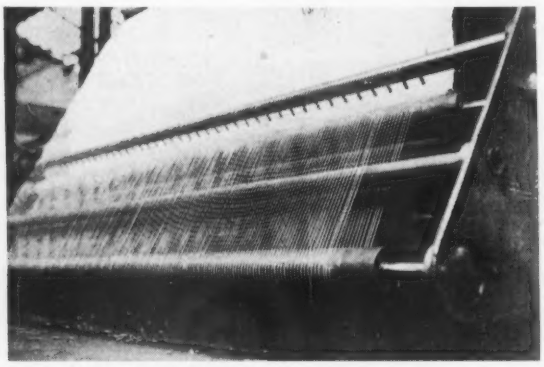
The squirrel cage rotor is cast in aluminium with ventilating fans integrally cast in the end rings, and is virtually indestructable. The rotor shaft is of high-grade steel, accurately ground to size with special attention to bearing finish. The complete rotor is dynamically balanced.

The single contact starting switch is equipped with silver contacts for long life, is mounted on a moulded bakelite base fitted inside the bearing bracket, and is operated by a centrifugal mechanism.

MACHINERY AND EQUIPMENT

String Discharge Rotary Vacuum Filters Aid Froth Flotation and Filtration of Slimes

Made to the designs of Filtration Engineers, Inc., U.S.A., string discharge rotary vacuum filters are now being manufactured by Stockdale Engineering Ltd. The string discharge, as distinct from the knife discharge, filter operates with a thin filter cloth as no mechanical wear or abrasion occurs in the filtration medium. The filter cloth itself which surrounds the periphery of the drum is itself surrounded with a series of endless strings made from nylon or terylene or other suitable materials, and after the dewatering cycle, the strings leave the drum at a tangent and are made to return to the drum for entry into the submergence zone.



Strings leaving drum and curling round discharge roller prior to return to the drum

By a special compression mechanism further water is extracted from the cake which both reduces vacuum requirements and produces a homogeneous thickness of cake. During the cake formation period when the strings are submerged, the cake is formed above and on top of the strings so that when the strings leave the drum at a tangent, the cake is gently lifted from the filter cloth.

Good results have been obtained on the filtration of frothed coal flotation tailings at several British collieries and the machine would appear to be suitable for the filtration of slimes encountered in mineral dressing.

It has frequently been found that in the attempt to filter slimes and certain colloidal slurries on the conventional knife discharge filter that the knife produces blinding even though blowback is employed. The virtue of this string discharge filter is that a combination of thinner cloth results in much higher filtration rates being obtained. A stock of 10 sq. ft. string discharge pilot filters complete with all accessories such as vacuum pumps, receivers and filtrate pumps, are available for hire. In the case of coal washery tailings, it has been found desirable to carry out pilot tests on site to determine the characteristics of the various tailings needing filtration, while for mineral dressing work, one or more of these filters could be made available. The filters are constructed in F.M.B. stainless steel, and are able to withstand severe operating conditions.

The above note and illustration are particularly interesting in light of an article entitled *Filtration and Drying Methods in Wet Metallurgical Processes* which appeared in our issue of September 24. It will be recalled that rotary vacuum dryers were discussed at some length in this article with particular reference to their application with rare metal precipitates.

A Multi-Cyclone Dust Separator for Mine Installations

The introduction of gases through a specially designed slot, the arrangement of the cyclones and the decantation of large dust particles into a primary hopper, are facets of an improved design of multi-cyclone dust-from-gases separation equipment recently patented by Thermix Industries Ltd.

Designated the Tubix dust-collector, the new unit is applicable to many industries, and has been installed at tipplers, screenhouses and drying plants at mines. The manufacturers state that the two former installations provided recovery efficiencies of 97 per cent, while the latter gave dust-recovery of 95 per cent.

The Tubix dust collector consists of a number of small cyclones arranged in parallel, which are welded between two tube plates. The tubes are generally mounted at an angle of 45 deg. and the number of cyclones is varied to suit the volume of gas to be handled.

The dust-laden gas enters at the manifold into the space between the tube plates were, due to their weight and velocity, the larger particles (in general those above B.S. Sieve No. 325) pass the tubes and are collected in the decantation hopper.

The gas containing the finer particles then enters through the inlet openings of the Tubix cyclones, and the particles are separated from the gas stream by centrifugal force which directs them against the periphery of the outer tube, where they descend in a spiral path and are discharged through the conical opening into the centrifugation hopper. The cleaned gas leaves the cyclone through the inner tube into the outlet manifold.

New Range of Tracto-Shovels

It has been announced recently by Mackay Industrial Equipment Ltd. that the first of a new range of Allis-Chalmers tracto-shovels has arrived in the United Kingdom. Designated the HD9G, the new unit is fitted with a 2½ cu. yd. heaped capacity bucket and is the third largest tracto-shovel in the Allis-Chalmers range.

This tractor is fitted with a General Motors 4 cylinder two stroke diesel engine, giving a belt horsepower of 84 and a drawbar horsepower of 72. This engine has a bore of 4½ in., a stroke of 5 in. and a capacity of 284 cu. in. The piston speed at 1,600 r.p.m. (rated engine speed) is 1,333 f.p.m. Maximum torque is obtained at 900 r.p.m. There are six forward speeds and three reverse, giving speeds from 1.4 m.p.h. and a drawbar pull of 19,030 lb. to 5.7 m.p.h. The tractor has a turning radius of 14 ft. 7½ in.

The Allis-Chalmers HD9G unit

The tractomotive equipment is operated by a hydraulic pump mounted at the front of the engine and controlled by a four position control valve. Both the lift cylinders and dump cylinders are double acting, thus giving down pressure for excavating, a controlled dump and a quick return. The loading cycle occupies 44 seconds, and the full width bucket has a heaped capacity of 2½ cu. yd. and a struck capacity of 2 cu. yd.

METALS, MINERALS AND ALLOYS

COPPER.—The immediate outlook for copper continues to be grimly uncertain. At the end of last week it was reported from Chile that all the striking copper miners had returned to work after accepting a 26 per cent increase in place of the 75 per cent which they had demanded. It was also reported than an arbitration tribunal would work out a final settlement thereby suggesting that 26 per cent was no more than an interim settlement. What was ominously missing from their reports was any sign that Braden Copper had agreed to any of these terms worked out between strikers and Government. It has since been reported that Braden has refused to appoint a representative to the tribunal and that the Chilean Government has appointed one on the company's behalf. There are also ominous reports that the miners of El Teniente are preparing to resume their strike. Anaconda's spokesman in New York has denied that there are any renewed difficulties at Potrerillos.

Meanwhile in the United States negotiations are proceeding at Anaconda's Montana operations although there is no sign of a settlement. The latest news is that negotiations have been suspended till October 5, but since the men are still claiming 25 cents plus fringe benefits and Anaconda is only offering 3 cents total, the parties are as far apart as ever. The strikers persist at the Garfield refineries of American Smelting and Refining and of Kennecott Copper.

It is clear that American producers would like to hold the price at 30 c. although dealers have obtained 33 c. and this is well below ruling London levels. Suppliers, even at 33 c. are running out and official confirmation is therefore eagerly awaited of Washington's plan for discounted stockpile purchases to a commercial consumption. These purchases are believed to be about 7,000 tons a month and though they would help meet the present critical shortage they would probably not meet the situation if the Chilian miners were to be struck once more.

Furthermore, Chile is hourly expected to raise her export price for the metal. She has every incentive to do so. First to take advantage of the market squeeze for which her own mines have been largely responsible. Secondly, and more importantly, to ensure that her nett receipts are kept up by more profitable dealing in the much reduced output of the metal.

Three thoughts present themselves. The first is that the situation in Chile remains critical and is a threat not only to the copper industry but to the present administration and even to the system of orderly government. Next, welcome as the diversion to consumption of current stockpile purchases may be, the use of the stockpile in this way cannot be regarded by producers or consumers with complete equanimity. The rule that the stockpile is kept off the market may be broken in a good cause, but it is of greater inportance that it has been broken at all. Finally, the price of copper has been worked up to a level at which the pull of competition, particularly of aluminium, is likely to be felt. The situation is not, in fact, doing the metal any good.

In the circumstances it is disturbing to hear Mr. G. Ellman-Brown, Southern Rhodesian Minister of Roads, say that if coal supplies to the copperbelt could not be improved the copper miners might have to close for a period each month. He cast doubt on whether coal supplies had been actually secured from the United States even at the price of £11 10s. a ton.

Also, in this jittery situation, it is uncomfortable to hear reports that African building workers in the Copperbelt are conducting a ballot strike. The mines are not, of course, involved directly, but disturbances, once started, have a habit of spreading.

Sir John Forster, chairman of the committee of inquiry into African advancements in the Copperbelt has submitted his report to the deputy Governor of Northern Rhodesia. It is expected that the report will be made public towards the end of this month.

LEAD.—Lead demand in the United States has been at least firm, and at times strong in the past week, and there has been some speculation as to whether the time is not approaching for a further advance from 14.75 c. per lb., New York. Good consumers demand is fairly confidently expected during October.

American consumption during the first seven months reached 623,041 tons compared with 706,000 tons in 1953, according to the Bureau of Mines. During July, consumption fell by 15 per cent to 80,879 tons, the smallest figure since September, 1951.

Renewed calls for offer by G.S.A. are expected daily; recent buying is believed to have been at the rate of 8,000-9,000 tons a month.

TIN.— Tin has been barely steady in New York with dealings restricted to small quantities. The interest aroused by the possibility of acquiring tin in exchange for surplus agricultural products passed quickly and will not reappear until the suggestion is much clarified. American consumption of tin in July decreased by 15 per cent to 6,300 l.tons. Tin-plate production fell from 616,048 tons in June to 215,953 tons in July.

Preliminary International Tin Study Group figures give tin metal production in Malaya for July as 5,739 tons compared with 5,135 in June. Malayan tin, in concentrates output, in August, reached 5,259 compared with 5,040 tons in July. If production continues at the present rate, the output for the year may well reach 60,000 tons; the previous best post-war year was 1950 with 57,537 tons. High output is attributed to the encouraging price level and the pre I.T.A. atmosphere.

West Germany has announced that, for the time being at any rate, she will not join the I.T.A. She considers the agreement too heavily weighted on the side of the producers but her decision is not a final one

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According to a report issued by the Federation of Malaya Geological Survey Department, quantities of workable tin may be found in the coastal areas near Kuala Selangor. Tin would be low grade and would need to be extracted. The report believed that production of tin ore from the area will probably reach 100,000 piculs a year.

ZINC.—Demand has been light for zinc which has remained at 11.50 E. St. Louis. A better demand is expected from die casters when the motor car production on 1955 models gets under way. Some solace exists also in the fact that the G.S.A. is expected daily to make another venture into the market; its rate of buying has recently been, it is believed, 15,000-20,000 tons a months.

TUNGSTEN.—Confirmation has now been received that tungsten ore consumers will be obliged to purchase one quarter of their total requirements of tungsten ores from official stocks between October and the end of this year. In fact, consumers have been asked to assume that this arrangement will remain effective until the end of March, 1955. Apparently, there is no deadline as to the date of their purchases from official stocks during this six month period so that the arrangements have the merit of being flexible. Additionally, the authorities have agreed to give consumers three months notice of any further change. Thus if official sales are to continue beyond next March or if the obligatory percentage offtake from official stocks is to be altered, consumers will be told before the end of December.

To-day's price of tungsten at 182s. 6d. plus 10s. charges, represents the middle quotation. Hitherto, the tungsten price given was the top price. Hence the present price indicates a fall of about 2s. 6d. per unit last week, the remainder of the price drop being accounted for by the change in the quotation basis.

ALUMINIUM.—Aluminium ore deposits, which may be extensive enough to merit exploitation, have been located in the Batang, Berjuntai area, Malaya, according to a report issued by Malaya's Geological Survey Department. Of two deposits discovered, one was too small to be of economic significance but the other extended over six miles, but had not yet been fully explored.

French aluminium production during January-August, 1954, totalled 82,702 tons compared with 74,337 tons in the corresponding period of last year. The total includes 68,683 tons produced by the French aluminium Company, Pechiney, 7,240 tons more than in the same period last year.

Japanese aluminum refineries have concluded contracts for the export to Argentina of 5,500 tons of primary aluminium, 3,500 tons of which is on a barter basis. The Japanese Light Metal Association in making this announcement also said that Japanese refineries had previously contracted for the export of 4,000 tons to Brazil and another 1,000 tons to Uruguay during the year ending March, 1955. Japan's exports of primary aluminium during the current financial year were expected to reach about 12,500 tons compared with 10,000 tons last year.

The London Metal Market

(From Our Metal Exchange Correspondent)

Tin has been a quiet market during the week, and prices in the East have been declining slightly with the London market following the same trend. Consumer demand here keeps up remarkably well, but in the U.S.A. little interest is being shown. Western Germany has decided not to join the International Tin Agreement because they state that they think it tends to put up the price of tin which they maintain they want to buy at the lowest price possible, and at the same time they put forward the view that consumer countries will be insufficiently represented on the Tin Council. The Eastern price on Thursday morning was equivalent to £744¾ per ton c.i.f. Europe.

Copper has been a very strong market, and, with threats of fresh strikes in Chile and the scarcity of offerings of physical metal, together with covering of short positions on the London market, the backwardation has increased to around £20 per ton. Demand both in Europe and America continues brisk. A proposal has been put forward in America that the G.S.A. should defer deliveries to the stockpile of some 7,000 tons a month and divert this to consumers there, but at the time of writing it is not known whether this will be approved. Stocks of copper in L.M.E. warehouses have further decreased and now stand at under 1,000 tons.

There is a steady demand for lead both here and in America. Supplies of metal for early arrival in this country are none too plentiful, and as a result the backwardation tends to increase with the approach of the end-of-the-month settlement. In some quarters it is reported that a rise in the American price is expected, but this would probably only occur should the London market register a sharp advance.

Zinc is in quiet demand and the London price has been very steady. In America supplies and stocks seem to be ample, and no doubt the market there is being supported by the stockpile buying policy. It is expected that the U.S.A. will enter the market shortly for the usual monthly purchases of lead and zinc.

Closing prices and turnovers are given in the following table:

	September 23		September 30	
	Buyers	*Sellers*	*Buyers*	*Sellers*
Tin				
Cash	£737½	£738	£732½	£733
Three months	£737½	£738	£733	£734
Settlement	£738		£733	
Week's turnover	425 tons		520 tons	
Lead				
Current month	£101½	£102	£103½	£104
Three months	£99	£99¼	£100½	£101
Week's turnover	2,725 tons		4,575 tons	
Zinc				
Current month	£81	£81½	£81	£81½
Three months	£81	£81½	£81½	£81½
Week's turnover	3,250 tons		2,625 tons	
Copper				
Cash	£270	£272½	£280	£282½
Three months	£249½	£250	£264	£265
Settlement	£272½		£282½	
Week's turnover	7,425 tons		5,050 tons	

OTHER LONDON PRICES — SEPTEMBER 30

ANTIMONY

English (99%) delivered, 10 cwt. and over .. .. £210 per ton
Crude (70%) .. .. .. £200 per ton
Ore (60% basis) .. .. .. 22s./24s. nom. per unit, c.i.f.

NICKEL

99.5% (home trade) .. .. £483 per ton

OTHER METALS

Aluminium, 99.5%, £156 per ton
Bismuth (min. 2 cwt. lots) 16s. lb.
Cadmium (Empire), nominal
Chromium, 6s. 5d./7s. lb.
Cobalt, 21s. lb.
Gold, 250s. 8½d. f.oz.
Iridium, £45 oz. nom.
Magnesium, 2s. 4d. lb.
Manganese Metal (96%-98%) £225/£262
Osmiridium, £40 oz. nom.
Osmium, £50 oz. nom.
Palladium, £7 oz.
Platinum, £30/£31
Rhodium, £42 oz.
Ruthenium, £22 10s. oz.
Quicksilver, £105 ex-warehouse
Selenium, 35s. 9d. nom. per lb.
Silver 73½d. f.oz. spot and 73¼d. f'd.
Tellurium, 15s./16s. lb.

ORES, ALLOYS, ETC.

Bismuth .. .. 50% 7s. 3d. lb. c.i.f.
40% 6s. 3d. lb. c.i.f.
Chrome Ore—
Rhodesian Metallurgical (semi-friable) 48% £12 8s. 0d. per ton c.i.f.
,, Refractory 45% .. £12 14s. 0d. per ton c.i.f.
,, Smalls 44% .. £8 5s. 6d. per ton c.i.f.
Magnesite, ground calcined .. £26-£27 d/d
Magnesite, Raw .. .. .. £10 - £11 d/d
Molybdenite (85% basis) .. .. 102s. 4d. - 103s. per unit c.i.f.
Wolfram and Scheelite (65%) .. 182s. 6d. - plus 10s. charges
,, ,, ,, U.K. Gov't Stock d/d 197s. 6d. plus charges
Tungsten Metal Powder (98% Min. W.) .. .. 17s. 0d. nom. per lb. (home)
Ferro-tungsten .. .. .. 14s. 0d. nom. per lb. (home)
Carbide, 4-cwt. lots .. .. £37 6s. 3d. d/d per ton
Ferro-manganese, home .. .. £54 15s. 0d. per ton
Manganese Ore Indian c.i.f. Europe (46%-48%) .. .. .. 68d./70d. per unit nom.
Brass Wire .. .. 2s. 9⅜d. per lb. basis
Brass Tubes, solid drawn .. .. 2s. 2⅜d. per lb. basis

THE MINING MARKETS

(By Our Stock Exchange Correspondent)

Mining markets had a much more cheerful week and although movements were erratic in places gains by leading companies were widespread.

Kaffirs attracted much attention. Shortly after we go to press the September monthly returns will be published, followed at an interval of three weeks by the quarterly results. These latter will be particularly important because of the anticipation that has already taken place. Results will therefore either confirm or disappoint recent buyers in their views. There has been a noticeable tendency among investment operators towards finance houses, some of which have not risen in value to the same extent as individual properties. These shares offer an effective hedge against patchy individual results. The Anglo American Corporation shares have been particularly favoured for this reason due to their widespread interests in the best properties. Late dealings on Wednesday brought in buyers for Consolidated Goldfields and the companies in the West Witwatersrand line.

Some increased interest in individual Rand mines, was backed perhaps by the higher price of gold in London caused by the fall of the £ against the dollar. Among younger properties in this group, Doornfontein and West Driefontein were markedly favoured and the main uranium producers also forged ahead.

Much of the activity in South African mines centred in the Orange Free State. With nine mines now producing the results due shortly will be particularly important. Harmony and the President mines were outstanding features but good gains were recorded by most of the leading favourites. St. Helena alone eased, due mainly to switching.

For the first time for many a long day, there was more interest taken in the West African market and dealers were kept busy. Ashanti were the best feature following the weakness shown in recent months. The developments at depth are now taken to confirm the fact that the future of the property will be set fair after the adjustment period.

Miscellaneous gold shares recorded little change, but Mysore hardened on news that the liquidation of the company will be discussed by the chairman at the meeting on November 11.

Diamonds were rather neglected and overshadowed by events elsewhere. Waterval Platinum were again a good feature.

Coppers were a very strong market. The continued squeeze in the metal, with the higher price, and reports of trouble in Chile, encouraged buyers. Some issues are now reaching high levels. Chartered touched 90s. and Rhodesia Anglo American 85s.. Rhodesia Katangas advanced cautiously following the technical report. The intentions of Anglo American Corporation with regard to this property will be awaited with interest. Rio Tinto were again bought and rose to a new peak. Tharsis touched £6 but later reacted nevertheless holding a nett gain of £1 on the week.

Much more interest was displayed in Eastern tin shares due to the capital factors being brought to public notice. Ayer Hitam recorded a good advance for this reason as also did Tronoh. Other companies previously mentioned as having a strong capital position, also forged ahead. Disappointment with the Kamunting dividend which was cut to 17½ per cent for the year against 40 per cent caused no change in the share price over the weekly period. The metal market position remains obscure but some city circles anticipate a reaction early in 1955. Nigerians were not so responsive as the Malayan section and gains where recorded were mostly small.

The lead/zinc market was quiet and little interest was displayed. An exception was Mount Isa where uranium possibilities continue to attract speculative attention.

Canadians were sensitive to the stronger base metal position. Hudson Bay Mining and International Nickel being the chief features.

FINANCE	Price Sep. 29	+ or — on week
African & European	3⅛	+ ⅛
Anglo American Corpn.	8⅛	+ 1/16
Anglo-French	26/3	—7½d
Anglo Transvaal Consol.	30/-	.....
Central Mining (£1 shrs.)	47/6	+ 3/6
Consolidated Goldfields	57/3	+ 1/9
Consol. Mines Selection	43/9	+ 1/10½
East Rand Consols	3/7½	—1½d
General Mining	5⅛	+ ⅛
H.E. Prop. 5/- Shares	11/6	—3d
Henderson's Transvaal	8/-	—3d
Johnnies	52/6xd	+ 2/6
Rand Mines	4	+ 1/16
Rand Selection	46/10½	+ 7½d
Union Corp. (2/6 units)	39/6	+ 1/3
Vereeniging Estates	4 1/16	.....
Writs	40/-	+ 2/6
West Wits	46/-	+ 2/6
RAND GOLD		
Blyvoors	34/6	+ 1/-
Brakpan	7/9	.....
City Deep	15/-	.....
Consol. Main Reef	20/7½	+ 7½d
Crown	42/6	+ 7½d
Daggas	72/6	+ 4/4½
Doornfontein	34/-	+ 2/3
Durban Deep	31/3	+ 1/3
E. Daggas	12/-	.....
E. Geduld (4/- units)	28/9	.....
E. Rand Props	2 1/16	.....
Geduld	3 1/16	.....
Govt. Areas	12/9	—3d
Grootvlei	19/-	.....
Libanon	10/6	+ 1½d
Luipaards Vlei	25/3	+ 2/-
Marievale	20/-	+ 9d
Modderfontein East	16/3	.....
New Kleinfontein	12/3	—6d
New Pioneer	19/3	+ 1/-
Randfontein	70/-	+ 2/6
Robinson Deep	22/6	+ 2/6
Rose Deep	13/6	+ 6d
Simmer & Jack	4/1½	+ 3d
S.A. Lands	23/9	+ 1/3
Springs	3/6	+ 1½d
Stilfontein	28/9	—1½d
Sub Nigel	40/7½	+ 7½d
Van Dyk	4/6	.....
Venterspost	12/6	+ 3d
Vlakfontein	15/9	+ 1/6
Vogelstruisbult	36/3	+ 3d
West Driefontein	6⅜	+ ½
W. Rand Consolidated	55/7½	+ 5/-
Western Reefs	49/4½	+ 1/3
O.F.S.		
Freddies	8/9	.....
Freddies Consolidated	24/-	—1½d
F. S. Geduld	6⅛	+ ⅛
Geoffries	22/6	+ 1/6
Harmony	44/3	+ 4/-
Loraine	17/6	.....
Lydenburg Estates	25/7½	+ 1/7½
Merriespruit	13/-	+ 1/-
Middle Wits	21/4½	+ 1/9
Ofsits	83/1½	+ 3/4½
President Brand	79/-	+ 3/3
President Steyn	45/-	+ 3/9
St. Helena	33/9	—7½d
Virginia Ord.	16/4½	+ 1/9
Welkom	32/9	+ 1/9
Western Holdings	5 5/32	+ 5/32
WEST AFRICAN GOLD		
Amalgamated Banket	2/-	— 6d
Ariston	7/4½	+ 6d
Ashanti	22/6	+ 3/-
Bibiani	5/-	+ 9d
Bremang	1/10½	+ 3d
G.C. Main Reef	3/10½	+ 4½d
Konongo	2/9	+ 6d
Lyndhurst Deep	1/1½	+ 3d
Marlu	1/4½	.....
Taquah & Abosso	3/4½	+ 10½d
W. Selection & Dev	8/3	+ 1/9
AUSTRALIAN GOLD		
Boulder Perseverance	9/-xd	+ 1½d
Gold Mines of Kalgoorlie	15/10½xd	+ 7½d
Great Boulder Prop.	8/9	—3d
Lake View and Star	16/6	+ 1/-
Mount Morgan	18/9xd	+ 3d
North Kalgurli	9/1½xd	+ 4½d
Sons of Gwalia	5/3	—6d
Western Mining	13/7½ xd	—4½d
MISCELLANEOUS GOLD		
Cam and Motor	9/-	+ 1½d
Champion Reef	4/9	— 3d
Falcon Mines	8/-	— 6d
Globe & Phoenix	24/-	.....
G.F. Rhodesian	7/9	+ 1½d
London & Rhodesian	4/10½	—1½d
Motapa	1/9	.....
Mysore	5/6	+ 4½d
Nundydroog	6/7½	+ 1½d
Ooregum	4/9	.....
St. John d'el Rey	16/3	+ 9d
Zams	40/-	.....
DIAMONDS & PLATINUM		
Anglo American Inv.	7½	.....
Casts	28/3	—3d
Cons. Diam. of S.W.A.	6½	.....
De Beers Defd. Bearer	6⅛	— 1/16
De Beers Pfd. Bearer	18	+ ⅛
Pots Platinum	10/10½	—1½d
Watervaal	17/-	+ 1/-
COPPER		
Chartered	90/-	+ 3/3
Esperanza	5/4½	—1½d
Indian Copper	5/-	—3d
Messina	5 5/16	+ 1/16
Nchanga	11 3/16	+ 1/16
Rhod. Anglo-American	85/-	+ 5/-
Rhod. Katanga	10/7½	+ 10½d
Rhodesian Selection	24/3	+ 1/7½
Rhokana	29⅛	+ 1½
Rio Tinto	39	+ 1½
Roan Antelope	20/10½	+ 1/-
Selection Trust	50/9	+ 9d
Tanks	5 1/16	— ⅛
Tharsis Sulphur Br.	5¼	+ 1
TIN (Eastern)		
Ayer Hitam	27/3xd	+ 1/3
Gopeng	8/1½xd	+ 6d
Hongkong	7/6	+ 4½d
Ipoh	20/-	+ 2/6
Kamunting	7/9	.....
Kepong Dredging	4/6	+ 9d
Kinta Tin Mines	10/3xd	+ 3d
Malayan Dredging	27/3	+ 1/3
Pahang	11/4½	+ 10½d
Pengkalen	8/9	+ 3d
Petaling	7/7½	.....
Rambutan	16/9	+ 1/1½
Siamese Tin	7/3	+ 6d
Southern Kinta	19/-xd	—3d
S. Malayan	25/6	+ 1/9
S. Tronoh	9/6	+ 7½d
Sungei Kinta	10/6	—3d
Tekka Taiping	5/1½	+ 3d
Tronoh	27/-xd	+ 2/6
TIN (Nigerian and Miscellaneous)		
Amalgamated Tin	15/-xd	—1/-
Beralt Tin	25/6	.....
Bisichi	7/-	.....
British Tin Inv.	16/3	+ 1½d
Ex-Lands Nigeria	3/1½	.....
Geevor Tin	13/6	+ 1½d
Gold & Base Metal	3/-	—1½d
Jantar Nigeria	9/7½	+ 3d
Jos Tin Area	13/6	—6d
TIN (Nigerian and Miscellaneous) contd.		
Kaduna Prospectors	2/6	+ 1½d
Kaduna Syndicate	2/6	+ 1½d
London Tin	6/6	+ 4½d
United Tin	3/1½	.....
SILVER, LEAD, ZINC		
Broken Hill South	54/-	+ 3d
Burma Mines	2/3	.....
Consol. Zinc	38/1½	—1½d
Lake George	8/3	+ 3d
Mount Isa	46/3xd	+ 2/-
New Broken Hill	31/-	.....
North Broken Hill	67/6	.....
Rhodesian Broken Hill	12/3	+ 6d
San Francisco Mines	22/-	+ 1/-
Uruwira	4/4½	—1½d
MISCELLANEOUS BASE METALS & COAL		
Amal. Collieries of S.A.	48/9	.....
Associated Manganese	45/7½	.....
Cape Asbestos	26/7½	+ 2/6
C.P. Manganese	41/6	.....
Consol. Murchison	57/6	+ 1/9
Mashaba	2d	.....
Natal Navigation	2⅛	— 1/16
Rhod. Monteleo	1/3	.....
Turner & Newall	88/-	+ 2/6
Wankie	16/10½	+ 1/7½
Witbank Colliery	4¼	.....
CANADIAN MINES		
Dome	$30½	—2
Hollinger	$31¾	.....
Hudson Bay Mining	$93	+ 1¼
International Nickel	$90	+ 2⅛
Mining Corpn. of Canada	£6½	+ 1/16
Noranda	$138½	+ 1
Quemont	£7⅛	.....
Yukon	3/9xd	—1½d
OIL		
Anglo-Iranian	16¾	+ ⅜
Apex	27/6	+ 2/6
Attock	46/3	+ 7½d
Burmah	100/6	+ 3/7½
Canadian Eagle	36/9	+ 1/4½
Mexican Eagle	20/3	+ 1½d
Shell (bearer)	5 1/16	+ 3/32
Trinidad Leasehold	27/-	+ 1/6
T.P.D.	27/6	+ 1/3
Ultramar	28/3	+ 7½d

COMPANY NEWS AND VIEWS

Johnnies Increases Net Profit

A decline in investment income during the financial year to June 30, 1954, was experienced by Johannesburg Consolidated Investment but the shortfall under this heading was more than fully compensated by the increase of £289,016 to £690,930 in profits from share dealing activities. Income from this source was, in fact, over half of the group's total income as compared with something like one-third previously, graphically reflecting thereby an ample participation in the sharp advances of gold share prices which has taken place since the beginning of the year. As normally this increased profit would have attracted a higher level of taxation it was most fortunate that due to the Freddies' merger and the consequent adjustment of investment values, liability in this respect was considerably lessened and there was also no E.P.L. charge.

Year to June 30	*Total Revenue**	*Taxation*	*Net Profit*	*Dividend*	*To Reserve*	*Carry Forward*
	£	£	£	£	£	£
1954	2,331,337	506,909	1,653,834	506,916	1,100,000†	358,414
1953	2,260,527	894,908	1,193,331	380,187	750,000	311,496

* Including share dealing profit £690,930 (1953 — £401,914)
† All to investment reserve (1953 — £250,000)

A dividend of 17½ per cent, the same as for the past five years, was maintained on the company's issued ordinary capital of £5,266,666 in shares of £1 as increased by the recent one for three share issue.

The company's quoted investments which represent large holdings in gold, diamond, copper, platinum, coal and lead-zinc mining, apart from substantial industrial interests, appeared on the balance sheet at £12,686,852 having the very much greater market value as at June 30, 1954, of £19,230,320. The latter figure has no doubt been substantially increased since the end of the financial year by recent market rises and the extent of undervaluation, while placing the company in a position of exceptional financial strength, also illustrates a most conservative financial policy. Moreover, in view of the disclosure that Johnnies now holds approximately 45 per cent of the newly-formed Freddies Consolidated Mine, an investment of great value in relation to its total assets, it is a somewhat reassuring thought that this margin of market valuation over book value of quoted investments exists. In fact the figure of over £6,500,000 is not so very much smaller than Johnnies' investment in Consolidated. Liquidity has much improved since last year mainly as a result of the recent share issue. Figures from the latest balance sheet show that current assets exceed liabilities and future tax by £858,108 added to which £3,309,494 is held in cash.

Prospects for the current financial year should be bright. For apart from promising share dealing activities which are likely to arise—the company has proved itself to be anything but inexpert in this field—a high level of prosperity continues in the diamond trade and the Northern Rhodesian copper industry in which important interests are held.

The company has lately come to be particularly identified with the production of uranium. At Randfontein, which has the largest uranium plant in South Africa, full potential production of the metal is expected to be reached soon, while at Freddies Consolidated—another mine with an exceptionally large lease—production has not yet started. On the other hand, East Champ D'or, also a member of the Johnnies group, has been pumping uranium slimes to Randfontein for treatment since February this year.

Perhaps the most significant aspect in regard to Johnnies future prospects is that the amalgamation of Freddies North and South has been concluded and that the consequent share issue was so successful. Indeed, it is possible now that the constant drain on Johnnies' resources may be arrested. Uranium production, together with the technical re-arrangements providing for selective gold mining of the large lease area, could very well bring the mine to a profit-earning basis in the near future. It is not necessary to emphasize the importance of this event to Johnnies on whose large invested funds there has as yet been little return.

On the dividend of 17½ per cent, which is more than twice covered, a reasonable yield of nearly 7 per cent can be obtained on the company's £1 ordinary shares at present standing in the region of 52s. In view of the potential earning capacity of this group this price does not appear to be unduly high. Mr H. J. Joel is chairman. Meeting, Johannesburg, November 23.

Outlook for Steel Shares

Sir John Morison and his colleagues in the Iron and Steel Holding and Realization Agency cannot be accused of undue precipitation in their methods of selling back State steel to the private investor. The properties of only three of the big steel enterprises have been converted into cash since the Agency was first appointed in July of last year, and it would appear that the Agency will have to move much more rapidly to have any hope of completing their task in the lifetime of the present Government whose franchise expires, at the latest, two years hence.

For the success of the new John Summers issue, for which the application lists open on Thursday, October 7, and close the following day, all the portents are highly favourable. The steel trade is booming, production this year will certainly surpass all previous records and there is an exceptionally heavy demand for strip and sheets which are the principal product of the Shotton works.

On a dividend forecast of 9 per cent "Ishra's" valuation of the ordinary shares at 24s. 6d. offers a yield of 7.35 per cent which is slightly better than the corresponding yields on the already denationalized shares of Stewarts and Lloyds, and United Steel, both of which stand at a premium on the original issue price. But the possibly decisive factor in the case of the new issue may be the prospect of greatly increased earnings in the course of the next two or three years, by which time the company's £40,000,000 development programme will have been completed and ingot capacity increased from 710,000 tons to 1,250,000 tons. Set against the possibility of considerable capital appreciation, are the political risks of the threat of re-nationalization which if half-heartedly espoused by the Socialist Opposition, is still earnestly advocated by some of the more powerful trade unions. That is the risk which has bedevilled the operations of "Ishra" thus far, and it cannot be denied that as the life of the present Government grows shorter, sales of the remaining properties of State steel are likely to become more difficult.

Mount Morgan's Record Production

Pending receipt of the full report and accounts of Mount Morgan, the Australian copper-gold producer for the year ended June 26, 1954, which will be to hand shortly, the directors' report which gives an outline of technical and financial operations during the year has been forwarded to shareholders by Austral Development, the company's London secretaries.

From the figures received, it is apparent that Mount Morgan has had a successful year and the production of gold and copper both reached record levels despite the smaller tonnage of ore treated. It is also disclosed that the sale of pyrite was much higher than that during the preceding year.

Year to June 26	*Mined* tons*	*Ore Treated*	*Mill Grade Gold*	*Mill Grade Copper*	*Recovery Gold*	*Recovery Copper*
	(000)	(*Tons*)	(*dwts.*)	(%)	(*ozs.*)	(*tons*)
1954	3,795·6	824,050	3·02	0·96	80,670	6,980
1953	3,431·4	834,200	2·45	0·92	66,130	6,745

* Comprising 2,878,046 tons of current and advance overburden and 917,545 tons of ore (1953 — overburden 2,521 tons, ore 910,365 tons)

On the other hand, production at the company's smelter showed a decrease of 5,474 tons of blister copper as against 6,236 tons previously. This was due to a shut-down on August 28, 1953, for the purpose of lengthening the reverberatory furnace and complete overhaul, all of which took approximately three months. Contained in the blister tonnage production were, 5,402 tons of copper, 61,945 oz. of gold and 18,195 oz. of silver. Metals on hand at the year-end, or in the course of treatment, amounted to 3,769 tons of copper, 49,330 oz. of gold and 13,965 oz. of silver.

Year to June 26	*Total Revenue**	*Mining Expes.*	*Net Profit*	*Dividends*	*To Reserve*	*Carry Forward*
	£	£	£	£	£	£
1954	2,738,837	2,048,276	440,645	332,802	66,000	479,678
1953	2,667,070	1,928,210	448,026	342,000	41,000	437,835

* Including £383,228 for discarding current overburden (1953 — £360,666)

Dividends paid on the company's issued ordinary capital of £1,400,000 in 10s. stock units totalled 20 per cent, the same level as that for the preceding year.

Expenditure during the year on new plant and machinery totalled £244,138 while, in continuation of the advance over-

burden removal campaign, 1,226,897 tons were moved during the year as against 882,347 tons previously. Accordingly, the cost of this work rose by £86,187. It will be remembered that this project was formulated during 1952 to ensure the continuity of future ore supplies, particularly from the Sugarloaf extension of the orebody. In order to assist with the finance of this scheme an issue of preference shares was subsequently made.

Production during the first two months of the current financial year is running above last year's level, and from a total of 143,000 tons of ore milled (128,000), 12,180 oz. of gold (11,860 oz.), and 1,211 tons of copper (1,113 tons) have been produced. Mount Morgan 10s. ordinary shares now stand at around 18s. 6d. to yield nearly 8½ per cent. Mr. J. Malcolm Newman is chairman.

Virginia To Make New Issue

With the object of raising £1,500,000 of new money it is announced that an issue in the ratio of three for every ten shares held at 10s. per share is to be made to the shareholders of Virginia Orange Free State Gold Mining Company. Corresponding rights will also be given to holders of the company's debenture stocks convertible rights attached to which extend until the end of next December. It is intended to post circulars to shareholders giving the full details of the proposal sometime next week. The issue is to be underwritten. Virginia 5s. ordinary shares now stand at about 15s. 3d.

Ashanti's Rich Strike and Maintained Interim

Following the report from Ashanti Goldfields Corporation, issued on September 14 to the effect that crosscut No. 2 N.E. had cut the reef at No 38 level, it is now revealed that the reef width disclosed was 18 ft. and had an average assay value of 5.6 dwt. gold per ton.

Although this result is undoubtedly good, values of this sort are not uncommon from the Ashanti Mine which is exceptional for its richness. What is more interesting, therefore, is that this first strike on the 38th level—the greatest depth yet reached at the mine—should be as good as it is, that is to say, 1,080 in. dwt.

An interim dividend of 20 per cent—the same as last year—on Ashanti's issued capital of £1,248,557 in 4s. stock units has been declared in respect of the current year ending September 30, 1954. For the year ended September 30, 1953, a final of 20 per cent brought total distribution to 40 per cent.

While both the above announcements drew attention to the West African gold share market generally, which recorded some good rises, the disclosure that Mr. H. C. Drayton is to join the board of Ashanti also gave a considerable boost to prices. Although not primarily associated with mining enterprises, it will be remembered that Mr. Drayton's organization has considerable interest in New Union Goldfields.

Bibiani Pays Same

The maintenance at last year's level by Bibiani (1927) of its interim dividend at 5 per cent on an issued capital of £500,000 in 4s. stock units has also been announced. A final payment of 5 per cent for this company's previous financial year to September 30, 1953, brought that year's total payment to 10 per cent.

Increasing Efficiency at Taquah and Abosso

It was possible to send a large tonnage of ore to the mill during the year ended March 31, 1954, at Taquah and Abosso, the West African gold producer, due to increased labour productivity and to the introduction of tungsten carbide-tipped steel drills. Moreover, the increased output was accompanied by a reduction in operating costs while the company's plant reorganizations and renewals of equipment improved gold recovery by .59 per cent over the previous year's figure. Total production of gold accordingly increased to 74,500 oz. (which include 1,420 oz. in reserve) as against 64,602 oz. previously. These technical achievements were reflected in the higher level of bullion sales which rose to £930,522 as compared with £859,239 in the preceding period.

Year to Mar 31	*Milled s. tons*	*Grade dwts.*	*Cost per s. ton**	*Devt. Fige.*	*Ore reserves s. tons*	*dwts.*
1954	306,500	4·9	50s. 1d.	5,707	664,290	5·49
1953	274,000	4·7	57s. 8d.	2,229	831,770	5·70

* Excluding development expenditure 3s. 4d. (1953 — 1s. 9d.).

The company was thus able to turn the losses of its two previous financial years into a profit. And when it is remembered that not many months ago liquidation was being faced, this was no mean achievement. Nevertheless, the remark made at the end of last year by the chairman, Mr. R. Annan, that the mine is operating on the basis of extracting the richer part of the ore reserves, must be borne in mind. Indeed, as he said, if enough development were to be undertaken to replace this ore no profit could be made.

Year to Mar 31	*Total Revenue* £	*Mining Expenses* £	*Devt. Expenses* £	*Depreciation* £	*Net Profit** £	*Carry Forward* £
1954	929,243	768,128	50,575	44,563	49,956	90,609
1953	852,439	789,976	23,974	45,803	DR22,184	44,868

* Excluding £16,021 miscellaneous expenditure (1953 — £14,870).

No dividend was declared on the company's issued capital of £388,125 in shares of 4s. each.

Future profitable operations depend largely on the company's ability to improve operating efficiency. And it is reported that during the first three months of the current financial year substantial progress towards this objective has been made, particularly in the crushing and grinding section. Plant capacity has been increased from 25,000 tons monthly to 33,000 tons monthly while at the same time higher rates of gold extraction and lower costs per ton of ore milled have been recorded.

Yet financial results for the first five months of the current year show no reflection of these improvements and a working profit of £20,807 compares with £59,494 in the corresponding period of last year.

Taquah 4s. ordinary shares now stand at 3s. 4d. Meeting, London, October 19.

Kinta Kellas' Capital Expenditure Programme

During the year ended March 31, 1954, the dredge operated by Kinta Kellas Tin Dredging Company treated a considerably larger amount of ground of a slightly higher grade than in the previous year, which led to a substantial improvement in production compared with the preceding year. And while the price received from sales of the company's production was much less, costs per ton showed a marked fall.

Year to Mar 31	*Dredged cu. yds.* (000)	*Output tin ore tons*	*Per cubic yard yield lbs.*	*Per cubic yard costs pence*	*Per ton tin-ore cost* £	*Per ton tin-ore price** £
1954	1,468·6	298·2	0·45	16·8	349	363
1953	1,079·6	184·3	0·39	23·6	577	532

* Less royalty.

For the second successive year no dividend was paid on the company's ordinary capital of £105,000 in 5s. stock units.

Year to Mar 31	*Total ore sales* £	*Revenue misc.* £	*Expenditure** £	*Taxation* £	*Net Profit†* £	*Carry Forward* £
1954	115,095	6,471	118,120	634	27,683	19,876
1953	104,325	11,899	115,615	NIL	11,162	11,162

* Including mine expenditure of £103,606 (1953 — £106,407).
† Including credits in respect of war damage claims and taxation of £24,87 (1953 — £10,553).

Although the results of last year's operations are a great improvement over those of the previous year, net profits earned bear little relation to those earned in the years before the boom in tin prices. Despite the repairs and renewals to the dredge which were carried out in 1952 the resulting improvements have proved insufficient to enable profitable operation of the company's medium grade ground. It has therefore been decided to convert the dredge's supply from steam to electricity and to change over partially from tables to jigs; an undertaking which will not be completed until about November.

This work will cost approximately £60,000 and it is hoped that the change over will make a substantial reduction in costs while throughput and turnover will both be increased. No capital issue is contemplated to raise money for this scheme although most of the company's present liquid resources will be absorbed and the resumption of dividends must therefore await the completion of the programme.

For the first five months of the current financial year a total of 121 tons of tin ore has been recovered representing an increase of about 10 tons on the output achieved in the corresponding period of the year under review.

Mr. P. J. Burgess is chairman. Meeting, London, October 8.

Kamunting, Profit Down—Dividend Down

Profits before tax earned by Kamunting Tin Dredging during the year ended March 31, 1954, were greatly reduced from those of the previous year at £184,634 as against £600,815. With the

recommendation of a final dividend of 12½ per cent on the company's issued capital of £668,750 in 5s. shares, total distribution for the year totals 17½ per cent as compared with 40 per cent for the two previous years.

The main reason for the fall in the company's profits was the necessity of moving two of the three working dredges from the worked out Pangnga Property to a new area at Bangtoe. Production for the first five months of the current financial year has not as yet returned to last year's level, 482¼ tons of tin-ore having been recovered as against 534½ tons in the corresponding previous period. Mr. J. Addinsell is chairman.

Wankie Pays More

A dividend of 7½ per cent has been recommended for the year to August 31, 1954, on the issued ordinary capital of Wankie Colliery comprising £3,309,375 in 10s. shares. This represents an increase of 2½ per cent over the 5 per cent dividend paid in respect of the previous year.

Net profits earned by the company, after all charges including interest and taxation, were £424,202 as against £340,016 in the preceding period. Appropriation to general reserve amounted to £105,000 as compared with £100,000 previously.

Kanshanshi's Progress

A progress report covering the period February 21 to July 31 has been issued by Rhodesia Katanga which owns the title to the Kanshanshi Copper Mine in Northern Rhodesia at which exploration work has been carried out for some time under the technical direction of the Anglo American Corporation of South Africa.

In view of the statement issued over a month ago, which revealed that no conclusive results had been reached at Kanshanshi and that exploration funds have been exhausted, it is no surprise that the property is to be placed on a care and maintenance basis until future action can be decided. What this decision will be it is impossible at the moment to anticipate, but it is likely that every effort will be made to finance further expenditure from profits earned by treating high-grade ore exposed above the 150 ft. level.

Meanwhile, underground development was suspended on July 27. And although the latest progress report shows that some very useful copper values have been disclosed—about the best of these was hole KU15 which gave a value of nearly 12 per cent copper over a width of over 4 ft.—there was little mention of the all-important sulphide copper deposits which are thought to exist on the property at depth.

Ooregum and Mysore to Liquidate

The main feature of the reports and accounts to December 31, 1953, in respect of the four Kolar gold producers is the disclosure that the liquidation of both Ooregum and Mysore Gold Companies is under consideration. In the case of Ooregum, definite proposals have been placed before shareholders and will be considered at an extraordinary meeting of the company at Mysore, India, on November 11. But as regards Mysore it is stated that liquidation will be "dealt with" by Mr. S. E. Taylor, the chairman of the company, when the annual meeting is held on the same date and at the same place.

Mining Men and Matters

Sir John Bagnall: As we go to press we learn, with deep regret, of the death of Sir John Bagnall at his home in Johannesburg on September 29. Until his retirement in 1947, Sir John was chairman of the Straits Trading Co. Ltd.

Mr. S. Barber, Principal Assistant to the President of the Overseas Metal and Ore Corporation, died suddenly in New York at the end of July. Mr. Barber lived in England for a number of years before the war and was actively engaged in the ore and mining trade.

The Mond Nickel Company, on behalf of its parent company The International Nickel Company of Canada, has announced that following negotiations between Associated Electrical Industries Ltd., Mond and Birlec Ltd., the sale by Mond of its wholly-owned subsidiary Birlec to A.E.I. has been agreed. Birlec will operate as an individual company within the A.E.I. group. **Mr. George P. Tinker** will continue as managing director and **Mr. T. G. Tanner** and **Mr. J. H. Crossley** as executive directors.

WESTERN MINING CORPORATION

BOARD'S PROGRESSIVE POLICY

NEW SHARE ISSUE

The 21st annual ordinary general meeting of Western Mining Corporation Ltd., was held on September 16 in Melbourne.

Mr. G. Lindesay Clark, B.Sc., M.M.E. (the Chairman), presided and in the course of his speech said:

(All figures are quoted in Australian currency)

The year's operations resulted in a net profit of £247,976, which is £58,721 greater than that earned in the previous year.

Two dividends, each of 6d. per stock unit, were paid during the year and absorbed £139,718. A further dividend, also of 6d. per stock unit, was declared after the close of the year and paid on August 20, 1954.

In January, 1954, the Corporation purchased through its wholly owned subsidiary, Champagne Syndicate No Liability, the Mount Charlotte mine from Mount Charlotte (Kalgoorlie) Gold Mines Limited for £10,000 cash, plus a further sum, payable out of profits, of not less than £100,000. This sum will vary according to profits earned, the price of gold and the level of wages in Kalgoorlie.

URANIUM

The Chairman then reviewed the extensive gold mining interests and developments.

As mentioned at the last Annual General Meeting we have begun prospecting for uranium, in association with our subsidiary, Gold Mines of Australia Limited, on a modest scale. In addition, we are endeavouring to keep in touch with new finds in various parts of the country.

OIL PROSPECTING

As recently announced, an arrangement has been agreed in principle between Shell, North Broken Hill Limited, Broken Hill South Limited and Western Mining Corporation Limited to form a group to search for petroleum. The association of the Shell group, with its technical resources and experience in oil production, with the Australian companies should make an organization which we hope the Western Australian State Government will welcome in this field.

Western Mining Corporation has, for many years, been much the most active group in prospecting and devoloping the mineral resources of Western Australia. The Corporation therefore hopes that its history and consistent efforts in prospecting in Western Australia will be taken into consideration by the Government in deciding what areas will be made available for oil prospecting.

The funds required for the initial geological examination will be provided by the companies concerned, but, should this examination justify an extended drilling campaign a company would be formed to take over, amongst others, the rights of Western Mining Corporation and Western Mining Corporation shareholders would then be invited to participate. The Corporation has agreed to make available to Gold Mines of Australia Limited 10 per cent of its interest in the petroleum venture.

PROVISION OF ADDITIONAL RESOURCES

It has been evident, for some time, that with the reduced value of money additional resources are required to sustain a progressive policy. Funds will be needed to take up the Corporation's proportion of the new proposed share issue by Gold Mines of Kalgoorlie referred to at that company's recent annual meeting. Should the favourable results now being obtained at Great Western Consolidated continue it seems probable that the Corporation would make an additional permanent investment in that company.

We will also need finance for our participation in oil and uranium prospecting as well as for maintaining our activities in gold. The Board, therefore, proposes to make a new share issue. Details of the issue will be announced shortly.

The report was adopted.

GAMBIAN MINERALS LIMITED (a subsidiary of British Titan Products Company Limited) urgently requires TWO JUNIOR GEOLOGISTS for work in Gambia. Applicants should be graduates in geology with two years field experience, capable of independent field exploration and alluvial prospecting; the work would be largely in the field with no accommodation for wives. Salary dependent upon qualifications and experience, but not less than £1,000 per annum. Free furnished accommodation; medical services; wife and children's allowances; 18 months tours followed by generous home leaves. Free first-class passages out and back each tour. Initial kit allowance of £50. Application forms may be obtained from the Personnel Manager, British Titan Products Company Limited, Kronos House, Coppergate, York.

GOLD MINES OF KALGOORLIE (AUST.)

NEW ACQUISITIONS

The third annual ordinary general meeting of Gold Mines of Kalgoorlie (Aust.) Ltd. was held on September 15 in Melbourne.

Mr. G. Lindesay Clark, B.Sc., M.M.E., the Chairman, presided, and in the course of his speech, said :

(All figures are quoted in Australian currency)

Net Profit for the year was £184,265 compared with £164,319 in 1952-53. Operating profit was £196,412 derived from the treatment of a record tonnage of ore—198,508 tons, which yielded 58,822 oz. of fine gold. Of the above tonnage 196,471 was mined by the company for a yield of 56,908 oz., or an average recovered grade of 5.79 dwts. per ton. Average recovered grade for the previous year was 5.66 dwts. per ton.

The increased profit earned enable dividends totalling 1s. 6d. per stock unit to be declared during the year, compared with 1s. 3d. per stock unit in the 1952-53 year.

Revenue received from premium gold sales in the open market fell sharply in this year. The amount received was £12,528 compared with £44,855 in 1952-53. The premium has virtually disappeared since the close of the financial year. The Commonwealth Bank increased its buying price for gold from £15 9s. 10d. to £15 12s. 6d. per oz. of fine gold on May 1, 1954 and this will, in some small measure, compensate for the loss of premium. Average operating cost per ton of ore treated fell from 72.23s. per ton in 1952-53 to 70.95s. in 1953-54.

The final call of 1s. per share on the Company's holding of contributing shares in Kalgoorlie Southern Gold Mines No Liability became payable in July, 1953 and took £2,500. At March 31 our holding was 170,000 shares of 5s. each fully paid. In May, 1954 Kalgoorlie Southern Gold Mines No Liability announced a new issue of shares and the Company acquired a further 182,625 5s. shares, on which it has paid 1s. per share. Its holding now amounts to 23.8 per cent of the issued shares.

Of the total development footage 37½ per cent was in ore averaging 10.0 dwts. over 67 in. Ore reserves of 583,000 tons at March 31, 1954 increased 4,000 tons over the figure at the end of March, 1953.

Since the end of the financial year to September 7, 5,519 ft. of development have been completed of which 29.1 per cent has been on ore assaying 10.2 dwts. over 69 in.

AMALGAMATION OF PROPERTIES

In the Directors' Report attention was drawn to the offer made to acquire the issued shares in South Kalgurli Consolidated Ltd. for 13s. English, equivalent to 16s. 3d. Australian per South Kalgurli share, with the alternative of receiving one fully paid share in this company for each fully paid South Kalgurli share. At July 27, holders of over 93 per cent of the South Kalgurli issued shares had agreed to accept our offer. Other members have accepted since that date. It is our intention to acquire all the issued shares in that company in accordance with the provisions of the U.K. Companies Act, 1948. Application will then be made for permission to transfer the company to Australia with the intention of winding up South Kalgurli and amalgamating its leases with those of Gold Mines of Kalgoorlie (Aust.) Limited.

More recently, details were made public of an offer of a similar nature to the stockholders of Boulder Perseverance Limited, namely, to purchase each 4s. stock unit for 9s. 6d. English (equivalent to 11s. 10½d. Australian), with the alternative of receiving 65 shares in this company for each 100 stock units in Boulder Perserverance. The Boulder Perseverance Company holds a majority interest in the Kalgoorlie Ore Treatment Company and in Kalgoorlie Enterprise Mines Limited.

We believe the amalgamation of these properties into one enterprise would lead to substantial economies in the operation of the leases as compared with the present independent operations. The current output from all the leases concerned amounts to approximately 38,000 tons per four weekly period.

Additional funds will be needed to meet our liability for the purchase of shares from those shareholders of South Kalgurli who have elected to take cash and, should the Boulder Perseverance offer be accepted, for cash purchases of stock in that company. In addition, the reorganization of the mines and treatment plants will also require further expenditure. As soon as the total requirements are known a rights issue will be made to stockholders.

The report was adopted.

KALGOORLIE SOUTHERN GOLD MINES NO LIABILITY

The 4th annual ordinary general meeting of Kalgoorlie Southern Gold Mines No Liability was held on September 15 in Melbourne.

Mr. G. Lindesay Clark, B.Sc., M.M.E. (the Chairman), presided and in the course of his speech said :

(The figures quoted are in Australian currency)

The cost of drilling, geological work and other expenses amounted during the year to £30,974, and this amount was transferred to Mine Property and Development Account, which, at March 31, 1954, stood at £141,208. This sum, plus plant and machinery, at cost £26,854, and net current assets £17,163, totalled £185,225, equal to the paid up capital of the company.

Available funds at date are approximately £40,000 and current expenditure £2,500 per four-weekly period while one drill only is operating.

During the year under review, the final call of 1s. on the 620,900 contributing shares was made, and at the end of the year the issued capital of the company was £185,225 divided into 740,900 fully paid shares of 5s. each.

At the previous Annual Meeting I advised you that the funds which the then issued shares would make available would be insufficient to carry the projected drilling campaign to a conclusion, and that a proposal to raise further money would be placed before shareholders in due course. This was done on May 26, 1954, when a new issue of 740,900 shares of 5s. each payable 1s. per share on acceptance, was announced. The issued capital of the company now comprises 740,900 fully paid 5s. shares, and 740,900 5s. shares paid to 1s.

The circular issued in May at the time of the new issue announcement, and the more recent annual report, have both contained detailed reports of the company's drilling campaign.

Since then there is little to report except that S.E.7 hole has now reached a depth of 237 ft., after having been delayed by difficult drilling in the top of the hole.

Generally, drilling and surface examination has shown the mineralization and rock alteration continuing south westwards, broadly parallel to the major system of faulting referred to as the Boulder fault. This is shown on the surface plan accompanying the Letter to Shareholders on the occasion of the recent issue.

Drilling performances have been maintained at a high standard which reflects great credit on all concerned. The cost of drilling S.E.6 hole to 4,700 ft. averaged approximately 52s. per ft.

The report was adopted.

ANGLO AMERICAN CORPORATION OF SOUTH AFRICA LIMITED.

VACANCIES FOR SENIOR GEOLOGISTS: Experienced Geologists required for senior posts in various parts of Southern Africa. Wide experience in economic and structural geology are necessary qualifications. Permanency of staff is aimed at and there is scope for a varied geological career within the Organization. Men with high scientific competence are preferred, but ability to apply the science is essential. Exploration conveniently a single man's job, but every consideration given to married men in apportionment of field, laboratory and map work. Salary according to experience and merit.

VACANCIES FOR JUNIOR GEOLOGISTS: Numerous vacancies exist for junior geologists and recent graduates. In most instances these vacancies are only for single men but from time to time a few selected married men in this category can be taken on—either for mine work or field work.

APPLY IN WRITING WITH FULL DETAILS OF EXPERIENCE AND QUALIFICATIONS TO: The Appointments Officer, Anglo American Corporation of South Africa, Limited, 11 Old Jewry, London, E.C.2.

Selected candidates will be interviewed by one of the Corporation's Consulting Geologists in late November.

AGENCE MINIÈRE ET MARITIME S A

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TRONOH MINES, LTD.

MR. J. H. RICH ON THE TIN OUTLOOK

The 52nd annual general meeting of Tronoh Mines, Ltd., was held on September 28, 1954, at the Offices, 73 Cheapside, E.C.2.

Mr. J. H. Rich, Chairman of the Company, presided, and the following is an extract from his circulated statement.

The working profit for the year ended December 31, 1952, was £481,745 which compares with £725,073 for the preceding year. After providing for taxation £251,649, there remains a balance of £233,104, which, added to the balance unappropriated at December 31, 1952, £296,334, makes a total credit of £529,438. The sum of £113,956 has been transferred to general reserve. Dividends totalling 4s. per share have been paid in respect of the year, and the Directors recommend that the remaining balance of £271,870 be carried forward to the current year. It will be noted that taxation absorbs no less than 52 per cent of our working profit.

The improvement in the security position is largely due to the able and energetic leadership of General Templer, and his departure will be regretted by many. It is appropriate to take this opportunity of expressing our deep gratitude to General Templer for the great work he has accomplished and for his inspired leadership, which will serve as a good example for others to follow.

If Malaya is to retain her position as a tin producer, it is essential to find fresh areas to compensate for the reserves now being rapidly exhausted. The only way of finding new areas is by prospecting. The Federal Government appears to realize the importance of prospecting, as it has on more than one occasion publicly stated that it would do all it could to encourage it. Judging by certain recent instances I feel it will not be easy to carry out that policy if the alienation of land for mining purposes is to be the prerogative and right of the State Council of the locality in which the land is situated.

The International Tin Agreement was closed for signature on June 30, 1954. By that date sufficient participating countries had signed it to bring it into force subject to ratification; not, however, until France, before signing, had obtained an assurance of support for its proposal that the ceiling price under the International Tin Agreement should be lowered from £880 to £840. Several Governments, including that of the U.K. and Malaya (after a referendum) gave this assurance. It is expected that, given the necessary ratification, the International Tin Council may be able to hold its first meeting before the end of 1954. Until then it is not possible to say what will be the next step in the International Tin Scheme. My personal view is that I hope that the date for its coming into force will be indefinitely postponed.

With the possible repercussion of the proposed International Tin Agreement, the future outlook is uncertain and confused making it impossible to forecast with any accuracy the future prospects of tin. One can only attempt to assess the future by examining certain factors that tend to influence the tin price. One of the most important is the industrial productivity in the U.S.A., the largest consumer, which is still high and shows little sign of serious recession. Another favourable factor is that, of the estimated world surplus of 40,000 tons (excluding Russia), the American Government has contracted to purchase direct from the producer countries at least 32,000/35,000 tons. From that is is fairly safe to assume that no great surplus of tin will be available until some time in the first quarter of next year. As regards production, according to the International Tin Study Group's Statistical Bulletin, the total mine production (excluding Russia and China) for 1954 based on the production for the first six months will be 155,200 tons, a decrease of 14,300 tons compared with 1953. Consequently with high industrial productivity in the U.S.A. and with a falling world production the future prospects for tin may be considered encouraging.

The report and accounts were adopted.

THE NANWA GOLD MINES LIMITED

Offers are invited for the purchase of the lease of the concession that has been worked by this Company, together with possession of the Manager's bungalow thereon.

Enquiries should be sent to me in writing before October 29, 1954.

P. W. MERTENS, F.C.A.,
Receiver for the
Secured Noteholders.

112/114 Cannon Street,
London, E.C.4.

CLIMAX ROCK DRILL AND ENGINEERING WORKS

FUTURE REVIEWED WITH CONFIDENCE

The Forty-first Annual General Meeting of The Climax Rock Drill and Engineering Works Limited was held on September 29 at Winchester House, Old Broad Street, London, E.C.

Mr. Ralph Ewing, A.M.I.Mech.E., chairman of the company, presided.

The following is an extract from his circulated statement:

In my report last year I stated that the trend of orders for 1953-54 was not very satisfactory and indicated that trading conditions were becoming more difficult; unhappily, despite strenuous efforts to improve the position, this trend continued and so our sales for the year under review were over 10 per cent lower than those of the year before.

The balance-sheet figures show little variation from those of last year. On the liabilities side reserves stand at £128,445, as compared with £140,349 last year, the reduction representing the decrease in the profit balance carried forward. The amount outstanding on acceptance credits of £110,000 is the same as for last year and there is little variation in the value of trade creditors and accrued expenses.

As already mentioned there was a drop in our sales during the period and particular reference can be made to Australia, Canada, South Africa, and South America. In Australia the slow but steady recovery in trade continues and with certain changes having been made in our selling methods there, the future should show continued improvement. In Canada the trend of trade, though slow, is becoming much more hopeful, and we hope to obtain our share of business from this vastly expanding market.

In South America there is no lack of business but very few countries have sterling available; there are some indications of improvement in this direction and as we have active and reliable agents in most countries no opportunity is neglected to acquire any import licences available. Our South African market continues to disappoint, due almost entirely to the fact that selling prices are very much out of proportion to current world prices. This is due to local manufacturers not only having lower overheads than importing companies but also severe price cutting on their part. As selling costs are constantly increasing, our trading in South Africa is not profitable, and if it had not been for Rhodesian sales the results would have been even more disappointing when consideration is given to the large stocks which have to be carried and the necessary depreciation to be provided owing to changes in denmed. The elimination of tre gold premium, shortage of labour, and heavy purchasing in previous years have caused the mines to restrict purchases during the year.

Every effort is being made to produce locally such parts as can be economically made and reduction in selling costs are visualized, but the South African market continues to be extremely difficult. Sales of air compressors have, however, improved but these are mostly for civil engineering contracts. In India while our subsidiary is not yet earning profits the prospects are improving. In the home market our sales have also suffered to some extent due to a drop in air compressor orders, owing to a restriction of public works contracts. This result was not unexpected as the total demand at home is limited, but there are indications now of a slight upward trend. It is satisfactory to report that we continue to receive contracts from the U.S.S.R. and have hopes of continuing this business in future.

Our Maxam department continues to expand and our turnover is increasing at a steady rate. Manufacturing has been reorganized as a self-contained unit, the sales staff has been increased and arrangements are in hand for export to the major overseas markets. Applications have been received from certain European countries for the manufacturing rights which are being negotiated.

Although the company's results for the present year have been disappointing, prospects for the future are somewhat brighter. Reorganization has taken place in a number of directions, and economies have been put in hand. In this connection I am pleased to be able to report that all our employees are co-operating wholeheartedly in efforts to improve productivity and reduce manufacturing costs. A substantial sub-contract has been obtained for products allied to ours and very suitable for our plant capacity. This contract is for delivery during the current year, and if satisfactory may well lead to further orders.

Providing we do not have to face additional increases in wages and selling costs we are hopeful of producing more satisfactory results in the next trading period, and it is this confidence in the future which has led to the directors' decision to recommend a dividend for the year ended March 31, 1954, of 3 per cent, less income tax.

The report and accounts were adopted.

ASHANTI GOLDFIELDS CORPORATION LIMITED

NOTICE IS HEREBY GIVEN that the Board of Directors have to-day declared an Interim Dividend (No. 116) on the Issued Capital of the Corporation at the rate of 9.6d. per Unit of Stock, less Income Tax at 9s. in the £. This Dividend which is in respect of the year ending September 30, 1954, to be payable on and after November 12, 1954, to all Stockholders on the Registers on October 1, 1954.

The Transfer Books will be closed from October 2, 1954, to October 11, 1954, both dates inclusive, for the preparation of Dividend Lists.

By Order of the Board,
E. W. MORGAN, *Secretary.*

Registered Address:
10 Old Jewry, London, E.C.2.
September 28, 1954.

BIBIANI (1927) LIMITED

NOTICE IS HEREBY GIVEN that the Board of Directors have to-day declared an Interim Dividend (No. 34) on the Issued Capital of the Company at the rate of 2.4d. per Unit of Stock, less Income Tax at 9s. in the £. This Dividend which is in respect of the year ending September 30, 1954, to be payable on and after November 12, 1954, to all Stockholders on the Registers on October 1, 1954.

The Transfer Books will be closed from October 2, 1954, to October 11, 1954, both dates inclusive, for the preparation of Dividend Lists.

By Order of the Board,
E. W. MORGAN, *Secretary.*

Registered Address:
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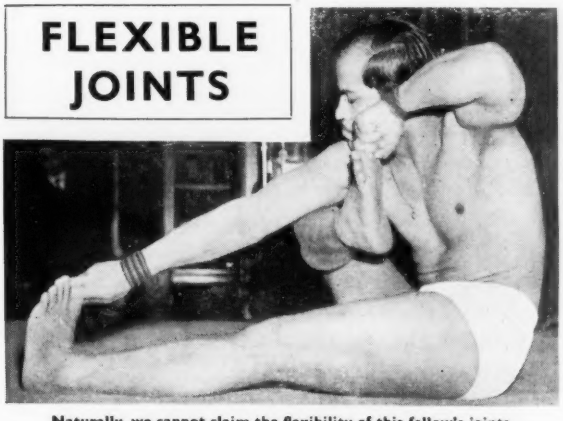

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Helmets Ltd.
Malcolm Campbell (Plastics) Ltd

HOISTS
Austin Hopkinson & Co. Ltd.
Fraser & Chalmers Eng'g Wks.
Holman Bros. Ltd.

HOSE — RUBBER
British Tyre & Rubber Co. Ltd.
Goodyear Tyre & Rubber Co. (G.B.) Ltd.

LIGHTING EQUIPMENT
English Electric Co. Ltd.
General Electric Co. Ltd.
Igranic Electric Co. Ltd.
Metropolitan-Vickers Electrical Co.
Victor Products (Wallsend) Ltd.

LOCOMOTIVES — DIESEL
Hill (C. M.) & Co. Ltd.
North British Locomotive Co. Ltd.
Ruston & Hornsby Ltd.
Wood (Hugh) & Co. Ltd.

LOCOMOTIVES — ELECTRIC
English Electric Co. Ltd.
British Thomson-Houston Co. Ltd.
Metropolitan-Vickers Electrical Co. Ltd.

LOCOMOTIVES — STEAM
Hill (C. M.) & Co. Ltd.
North British Locomotive Co. Ltd.

LUBRICATION — MECHANICAL
Tecalemit Ltd.

MAGNETIC SEPARATORS
Davies Magnet Works Ltd.
Huntington, Heberlein & Co. Ltd.
Rapid Magnetic Machines Ltd.

MAGNETS-ELECTRO LIFTING
Igranic Electric Co. Ltd.
Rapid Magnetic Machines Ltd.

MINE CARS
Butterley Co. Ltd.
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PIT PROP EXTRACTORS
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Fraser & Chalmers Eng'g Wks.
Ward (Thos. W.) Ltd.

PUMPS — GRAVEL
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Denver Equipment Co. Ltd.
Ruston Bucyrus Ltd.

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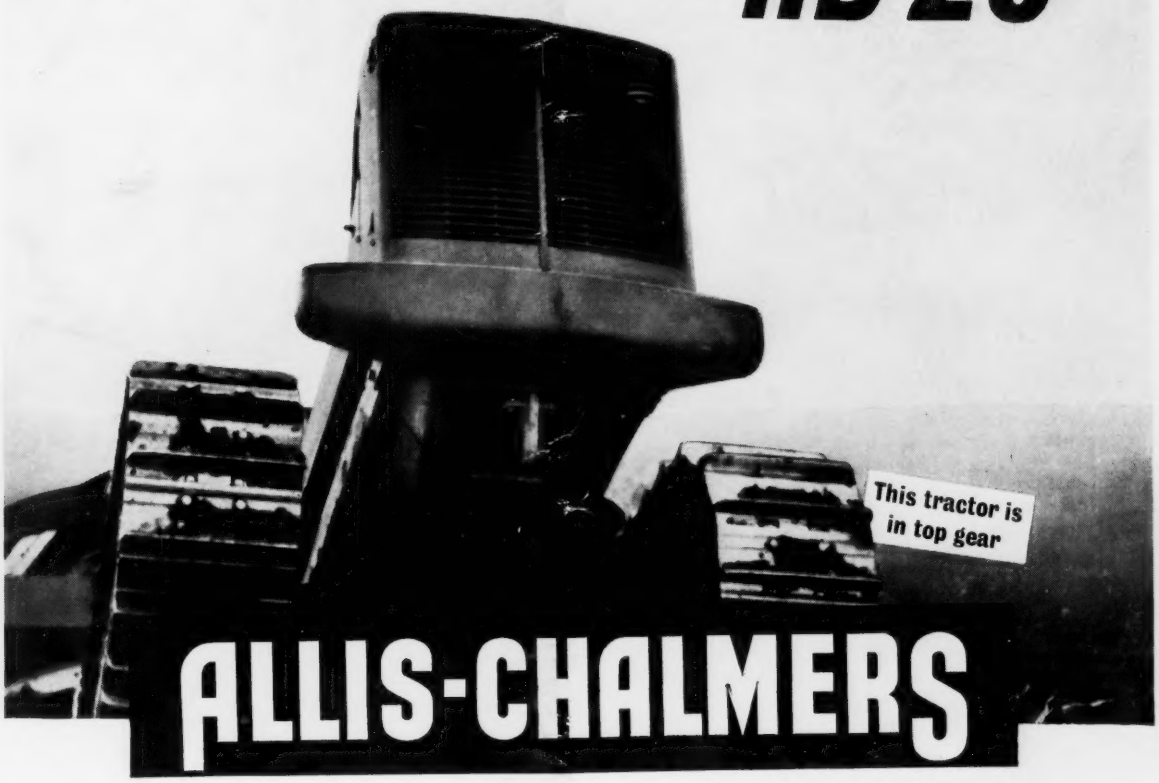

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